



University of Kentucky
UKnowledge

University of Kentucky Doctoral Dissertations

Graduate School

2010

A QUALITATIVE STUDY OF THE PERCEIVED HEALTH BENEFITS OF A THERAPEUTIC RIDING PROGRAM FOR CHILDREN WITH AUTISM SPECTRUM DISORDERS

Margaret Ann Stickney
University of Kentucky, stix7074@aol.com

[Right click to open a feedback form in a new tab to let us know how this document benefits you.](#)

Recommended Citation

Stickney, Margaret Ann, "A QUALITATIVE STUDY OF THE PERCEIVED HEALTH BENEFITS OF A THERAPEUTIC RIDING PROGRAM FOR CHILDREN WITH AUTISM SPECTRUM DISORDERS" (2010). *University of Kentucky Doctoral Dissertations*. 40.
https://uknowledge.uky.edu/gradschool_diss/40

This Dissertation is brought to you for free and open access by the Graduate School at UKnowledge. It has been accepted for inclusion in University of Kentucky Doctoral Dissertations by an authorized administrator of UKnowledge. For more information, please contact UKnowledge@lsv.uky.edu.

ABSTRACT OF DISSERTATION

Margaret Ann Stickney

The Graduate School
University of Kentucky

2010

A QUALITATIVE STUDY OF THE PERCEIVED HEALTH BENEFITS OF A
THERAPEUTIC RIDING PROGRAM FOR CHILDREN WITH AUTISM SPECTRUM
DISORDERS

ABSTRACT OF DISSERTATION

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Education in the
College of Education
at the University of Kentucky

By

Margaret Ann Stickney

Lexington, Kentucky

Co- Directors: Dr. Richard Riggs, Professor of Kinesiology and
Health Promotion
and Dr. Julie Cerel, Professor Social Work

Lexington, Kentucky

2010

Copyright © Margaret Ann Stickney 2010

ABSTRACT OF DISSERTATION

A QUALITATIVE STUDY OF THE PERCEIVED HEALTH BENEFITS OF A THERAPEUTIC RIDING PROGRAM FOR CHILDREN WITH AUTISM SPECTRUM DISORDERS

Therapeutic horseback riding can be recommended as a useful health promotion intervention for individuals with disabilities who face challenges to optimal health and wellness. This qualitative study examined the perceived benefits of a therapeutic riding program for children with autism spectrum disorders (ASD), with particular focus on aspects that can potentially help maximize the physical, emotional, and social health of this population.

This study utilized multiple methods to gain an in-depth perspective on the benefits of a therapeutic riding program based at Central Kentucky Riding for Hope in Lexington, Kentucky, for subjects presenting primarily with ASD. Focus groups were held with five instructors and five class volunteers, and semi-structured personal interviews were conducted with two staff members and the parents and family members of 15 children diagnosed with ASD who were currently enrolled a riding session. Client records containing medical history, lesson plans and client evaluations were also reviewed.

Thematic analysis of the data supported perceived gains in the areas of physical, cognitive, psychological, and social development and also highlighted additional support mechanisms for family members of the clients. Some of the most common benefits reported included increased physicality, improved focus and attention, modification of inappropriate behaviors, enhanced self-concept, and increased social interaction and communication. Major factors believed to affect the success of this intervention were the unique movement and sensory stimulation of the horse, the supportive environment of the facility, and the increased motivation for the children to participate and complete the structured activities and exercises required in the riding class setting.

Results of this study encourage the utilization of therapeutic riding as an effective health promotion intervention for individuals with ASD. Recommendations for future research efforts include analysis of the effects of deep sensory pressure and the movement provided by the horse on the emotional regulation and cognitive processing of children with ASD. Study designs isolating the variable of the horse's presence could further clarify the nature of the animal's role in similar interventions. Quantitative studies with larger samples measuring specific cognitive, psychological, and social variables not previously studied but revealed in this data are also encouraged.

KEYWORDS: Autism, Autism Spectrum Disorders, Therapeutic Riding, Equine-Assisted Therapy, Equine-Assisted Activity

Student's Signature

Date

A QUALITATIVE STUDY OF THE PERCEIVED HEALTH BENEFITS OF A
THERAPEUTIC RIDING PROGRAM FOR CHILDREN WITH AUTISM SPECTRUM
DISORDERS

By
Margaret Ann Stickney

Co-Director of Dissertation

Co-Director of Dissertation

Director of Graduate Studies

Date

RULES FOR THE USE OF DISSERTATIONS

Unpublished dissertations submitted for the Doctor's degree and deposited in the University of Kentucky Library are as a rule open for inspection, but are to be used only with due regard to the rights of the authors. Bibliographical references may be noted, but quotations or summaries of parts may be published only with the permission of the author, and with the usual scholarly acknowledgments.

Extensive copying or publication of the dissertation in whole or in part also requires the consent of the Dean of the Graduate School of the University of Kentucky.

A library that borrows this dissertation for use by its patrons is expected to secure the signature of each user.

Name

Date

DISSERTATION

Margaret Ann Stickney

The Graduate School

University of Kentucky

2010

A QUALITATIVE STUDY OF THE PERCEIVED HEALTH BENEFITS OF A
THERAPEUTIC RIDING PROGRAM FOR CHILDREN WITH AUTISM SPECTRUM
DISORDERS

DISSERTATION

A dissertation submitted in partial fulfillment of the requirements for the degree of doctor
of Education in the College of Education at the University of Kentucky

By

Margaret Ann Stickney

Lexington, Kentucky

Co-Directors: Dr. Richard Riggs, Professor of Kinesiology and Health Promotion
and Dr. Julie Cerel, Assistant Professor of Social Work

Lexington, Kentucky

Copyright © Margaret Ann Stickney 2010

DEDICATION

To my mom, who could not have loved and supported me more

ACKNOWLEDGMENTS

The long hard road to completion of this degree is lined with supporters to whom I am most grateful. First and foremost to my committee chair, Dr. Richard Riggs, who patiently stood by me through my long graduate career and my many false starts, always encouraging and always user-friendly. Secondly, to my amazing friend Dr. Julie Cerel, whose innocent offer of assistance after a tennis match eventually led to her position as committee co-chair. Her expertise in qualitative research, her constant encouragement, and her willingness to answer a million questions along the way was essential in breaking the inertia and moving me forward through the process. I couldn't have done it without her. Dr. Roberta Dwyer, long regarded as a friend and valuable resource during my career as an equine educator, volunteered to serve on my committee and was always on hand to provide sound practical advice and unwavering support. Committee members Dr. Melody Noland and Dr. Melinda Ickes were careful to keep my research efforts grounded in a health promotion approach, and my outside reader, Dr. Lisa Ruble, contributed her expertise in autism spectrum disorders. Two former committee members and professors during my coursework deserve credit for helping me out of the starting blocks: Dr. Jody Clasey, for initially suggesting a research focus on therapeutic riding, and Dr. Kim Miller, for steering me into a workable qualitative research approach.

I would also like to thank the board of directors, staff and volunteers of Central Kentucky Riding for Hope who welcomed me most graciously into their facility. In particular, Executive Director Pat Kline and Program Director Denise Spittler cheerfully accommodated my every request throughout the data collection process and beyond. I was honored to witness firsthand the knowledge, positive energy, and endlessly creative

strategies that produce little miracles within their clients each and every day. And of course my research was chiefly inspired by the parents and family members of the therapeutic riding clients who willingly shared their poignant stories with me, providing insight into their special challenges and proactive efforts to help their children “be all they can be” – an inspirational message for us all.

An especially big round of applause goes out to all my wonderful family members, friends, and co-workers who have patiently listened to the stories of my struggles while consistently reminding me of their collective belief in my ability to finish. I could not ask for more loyal cheerleaders to gently prod me on to bigger and better accomplishments over the years. I must also acknowledge the comforting presence of my three cats - Hank, Chester, and Hambone - who helpfully stationed themselves right at the computer all those many, many hours. And lastly, a very special thanks to my “wingman,” who provided a most unique combination of support, encouragement, and music-to-work-by on a daily basis throughout this past year. I love you all so much!

TABLE OF CONTENTS

Acknowledgments.....	iii
Chapter One: Introduction	
Background.....	1
Statement of the Problem.....	3
Purpose of the Study.....	4
Research Questions.....	5
Limitations.....	5
Definitions.....	6
Summary.....	8
Chapter Two: Review of the Literature.....	9
Autism Spectrum Disorders.....	9
Etiology and symptoms presented.....	9
Goals of therapy.....	12
Equine-Assisted Activity and Therapy.....	13
Mounted Equine-Assisted therapy: Therapeutic Riding and Hippotherapy.....	15
Physical benefits of mounted equine-assisted therapy.....	16
Psychosocial benefits of mounted equine-assisted therapy.....	17
Summary of Research on Benefits of Mounted Equine-Assisted Therapy.....	20
Research of physical benefits of mounted equine-assisted therapy.....	20
Research of psychosocial benefits of mounted equine-assisted therapy.....	24
Summary.....	29
Chapter Three: Procedures.....	30
Methods.....	30

Subjects.....	30
Design and procedure.....	35
Analysis plan.....	39
Summary.....	40
Chapter Four: Results.....	42
Participants.....	42
Results.....	43
Cognitive benefits.....	43
Physical benefits.....	63
Social benefits.....	86
Psychological benefits.....	129
Family benefits.....	182
Summary.....	223
Chapter Five: Summary, Conclusions, Discussion, and Recommendations.....	226
Summary.....	227
Conclusions.....	229
Cognitive benefits.....	229
Physical benefits.....	234
Social benefits.....	238
Psychological benefits.....	248
Family benefits.....	258
Discussion.....	269
Recommendations.....	276

Appendices

Appendix A: CKRH Therapeutic Riding Program Research Statement.....279

Appendix B: Recruitment documents.....280

Appendix C: Consent forms.....284

Appendix D: Sample questions for focus groups and personal interviews.....296

Appendix E: Participant profiles.....300

Appendix F: CKRH record forms.....310

References.....321

Vita.....327

Chapter One

Introduction

Background

There are many different ways to define *disability*, a general term that denotes significant functional problems in the capacity, the ability, and the opportunity to perform in specific contexts (Ninivaggi, 2008). An individual may be born with or later acquire limitations in physical or mental function, caused by one or more medical conditions, which influence to some extent that person's ability to engage in activities of daily life, (Centers for Disease Control, 2008). Disabilities can affect people in different degrees, even within the same condition, but persons with disabilities share many of the same challenges to optimal health and wellness. There is always a need for enjoyable and motivational therapies that can provide benefits for a range of disabilities such as therapeutic horseback riding, which is often recommended as a useful community-based intervention for a number of physical and mental disabilities.

According to census bureau data for the year 2005, approximately 54.4 million (18.7%) of individuals living in the United States were affected by at least one disability (United States Census Bureau, 2008) and 35 million (12%) had a severe disability. Disability creates major economic and social impacts in the workplace and the country's health care system, thus warranting consideration as a critical public health concern. Healthy People 2000 (United States Department of Health and Human Services, 2010), released in 1990, was a federal initiative that identified the most significant preventable threats to health and served as a guideline for both public and private sector efforts to address those threats. The three main goals for all *priority areas* were to increase quality

and years of healthy life, reduce health disparities, and achieve access to preventive services for all Americans. Ten years later, Healthy People 2010 (United States Department of Health and Human Services, 2010) also sought to increase quality and years of healthy life, pledged to *eliminate* health disparities among different segments of the population, and set measurable objectives for disease prevention and health promotion in 28 focus areas, including for the first time, Disability and Secondary Conditions. Objectives for this area include promoting the health of people with disabilities, preventing secondary conditions, and eliminating disparities between people with and without disabilities in the United States population. The overview for this section describes a common misconception that people with disabilities automatically have poor health. This perspective may have resulted in a lack of focus on health promotion and disease prevention activities for this population. Many interventions that target optimal health, well-being, and participation in life activities are relevant to all persons with disabilities. Noting an increase in disability rates among youth, however, Healthy People 2010 illustrates the particular importance of providing appropriate health promotion and prevention of secondary conditions for this age group, with the ultimate objective of achieving and sustaining a level of physical and mental wellness that encourages a fullness of life.

In 2008, the national prevalence rate for children with a disability aged five to 15 years was 5.1 percent (Cornell University, 2008). *Developmental disabilities* encompass a group of conditions caused by mental and/or physical impairments that occur any time between birth and age 22, and are one of the most common types of impairment for children (Centers for Disease Control, 2008). This group includes ASD, a condition

likely to continue indefinitely, that can predispose affected children to both increased health concerns and the susceptibility to develop secondary conditions (Centers for Disease Control, 2008). Emotional distress caused by environmental barriers that limit children's ability to participate in life activities can contribute to a decline in both physical and mental health. This combination of factors necessitates a continuous need for appropriate programs within a community that can help maximize the children's overall physical, emotional, and social health status (Centers for Disease Control, 2008). Treatments commonly utilized for developmental disabilities such as ASD include physical, cognitive, behavioral, educational, speech and language, family, pharmacologic, nutritional, sensory integration, and complementary and alternative therapies, as well as social skills training and psychotherapy. Objectives should address factors that will help prepare the child for success in education, family life, and the community (National Research Council, 2001).

Statement of the Problem

Horseback riding is considered by most to be merely a recreational or sporting activity, but increasing numbers of riding centers devoted to the therapeutic value of this activity speak to the long-held belief that greater benefits may be reaped from the almost mystical attraction horses have always held for man. Equine-assisted therapy programs provide services to persons with a wide variety of both physical and emotional disabilities. Three of the most common conditions presented by the population of more than 42,000 riders who participate in programs accredited by the North American Riding for the Handicapped Association (NARHA, 2010) are developmental disabilities such as ASD, cerebral palsy, and intellectual disability. Proponents of therapeutic riding are

quick to provide lists of potential benefits for persons with a range of disabilities, including physical gains such as decreased spasticity in muscles and improved balance and motor performance as well as psychosocial benefits ranging from increased self-esteem, self-confidence and self-efficacy to improved communication and social skills. Research support for these claims over the past two decades, however, has remained scarce and is primarily limited to studies of physical benefits for riders with cerebral palsy. Only one peer-reviewed study was found regarding the effects of therapeutic riding for ASD, which is reportedly becoming one of the largest populations served at the local therapeutic riding facility. Psychosocial benefits derived from therapeutic riding have received little research focus within any population. Small sample size and heterogeneity due to variances in age, sex, and severity of symptoms among subjects have often limited demonstration of consistent positive effects, although even small improvements that traditional measurement tools might not be sensitive enough to detect can have major practical and psychological significance for participants and their families.

Purpose of the Study

The purpose of this qualitative study was to examine the perceived health benefits of a therapeutic riding program intervention for children with autism spectrum disorders. The qualitative design provided the researcher with a greater understanding of the particular experiences of the intervention that could potentially help maximize the physical, emotional, and social health of this population, rather than what could be captured with standardized instruments.

Research Questions

In order to achieve these goals, several research questions must be answered.

These questions regarding the population of ASD clients that participate in one therapeutic riding program included:

1. What physical benefits affecting overall health status of clients, if any, will be reported by instructors, parents, program volunteers, and staff members?
2. What psychological benefits affecting overall health status of clients, if any, will be reported by instructors, parents, program volunteers, and staff members?
3. What social benefits affecting overall health status of clients, if any, will be reported by instructors, parents, program volunteers, and staff members?

Limitations

This study was limited by pre-selection of many participants by the therapeutic riding facility, Central Kentucky Riding for Hope. Lists containing contact information for specific instructors and class volunteers were provided to the researcher by the Program Director based on her opinion that these individuals could offer the best experiential reflections due to their length of service with clients with ASD. Contact information for parents was also provided by the Program Director due to confidentiality issues, but all parents or primary caregivers of currently-enrolled therapeutic riding clients with autism spectrum disorders had given prior permission to be approached by the researcher.

Definitions

Terms related to subject content presented in this study will be defined in this section.

Asperger's disorder is a developmental disorder marked by impairment in social interaction and restricted, repetitive patterns of behavior, interests, and activities. Unlike autistic disorder, there are no significant delays in language, cognitive development, or self-help skills (Sadock & Sadock, 2003).

Autism spectrum disorders (ASD) is the more common term for pervasive developmental disorders (Murray, Ruble, Willis, & Molloy, 2009) which include autistic disorder, Rett's disorder, childhood disintegrative disorder, Asperger syndrome, and pervasive developmental disorder not otherwise specified. All of these related developmental disorders are marked by significant social, communication and behavioral challenges (American Psychiatric Association, 2000). Symptoms of ASD may appear at different ages and affect each individual in different ways, ranging from very mild to severe deficits. This term is utilized in this study as the most representative of the selected group of therapeutic riding program clients who are located at several different points in the range of clinical symptoms.

Cerebral palsy is a condition characterized by a collection of nonprogressive but often changing motor disorders that result secondarily to abnormalities in the developing brain, causing impairment in movement and posture (Ketelaar, M., Vermeer, A., 't Hart, H., van Petegem-van Beek, E., & Helders, P. J. M., 2001).

Developmental disabilities include a group of conditions caused by mental and/or physical impairments that occur any time between birth and age 22, including autism

spectrum disorders, cerebral palsy, intellectual disabilities, hearing loss, and vision impairment.

Equine-assisted activity and therapy refers to a general category of interventions utilizing the presence of a horse, including therapeutic riding, hippotherapy, and other non-mounted activities such as equine facilitated psychotherapy.

Hippotherapy is an equine-assisted therapy in which the horse serves only as a treatment tool, providing a continuous, rhythmical motion with the client mounted on his back.

Hippotherapy is considered a medical intervention and must be provided under the supervision of a licensed physical, occupational, or speech therapist.

Horse leader is an assistant in mounted equine activities who helps preserve the rider's safety by controlling the horse through direct contact on a lead shank or rope attached to the horse's halter or bridle.

Meltdown is a colloquial term commonly used to describe an extreme emotional upset or temper tantrum.

Pervasive developmental disorders (PDD) is a comprehensive term encompassing autistic disorder, Asperger's syndrome, Rett's disorder, childhood disintegrative disorder, and pervasive developmental disorder-not otherwise specified, all of which are characterized by markedly abnormal or impaired social and communication skills and restricted activities and interests (American Psychiatric Association, 2000).

Sidewalker is an assistant in mounted equine activities who walks or jogs alongside the mounted rider and helps to stabilize the rider through direct contact or by remaining vigilant in close proximity to help balance the rider if necessary. Sidewalkers also

function as a liaison between instructor and rider by reinforcing both instructor commands and client compliance to instruction.

Tack refers to equipment used or worn by the horse, such as a halter, bridle, saddle, or saddle pad.

Therapeutic riding is a type of mounted equine-assisted therapy that requires the rider to learn the basics of guiding and controlling his or her mount, with the long term goal of independent riding, if possible. Exercises and activities performed target the physical, cognitive, and psychosocial skills of the rider and are designed to meet the individual needs of the rider.

Summary

This chapter introduced the health initiatives encouraged by the federal government's Healthy People 2010 regarding youth with disabilities, which includes those children diagnoses with ASD. Therapeutic riding was also described as an intervention that offers many purported benefits to clients with ASD, but the general lack of research focusing on this type of equine-assisted therapy, especially for this particular population, has resulted in a lack of scientific support for this potentially effective community intervention. The purpose of the study was then explained and a list of the related research questions was provided. Concluding the chapter were definitions of terms that are relevant to topics in the study.

Chapter Two

Review of the Literature

The purpose of this qualitative study was to examine the perceived benefits of a therapeutic riding program intervention for children with ASD. The qualitative design provided the researcher with a greater understanding of the particular experiences of the intervention that could potentially help maximize the physical, emotional, and social health of this population, rather than what could be captured with standardized instruments.

This chapter begins with a detailed discussion on etiology, symptoms, and therapeutic goals for autism spectrum disorders, one of the most common diagnoses of clients in therapeutic riding programs. Next is a brief history of equine-assisted therapy and its current applications, followed by an in depth explanation of the two mounted equine therapies, therapeutic riding and hippotherapy, and their purported physical and psychosocial benefits. Lastly, a review of peer-reviewed studies for both therapeutic riding and hippotherapy will demonstrate the dearth of research involving populations with disabilities other than cerebral palsy, as well as the lack of focus on psychosocial variables, lending credence to the need for the current study.

Autism Spectrum Disorders

Etiology and symptoms presented.

As categorized by the Diagnostic and Statistical Manual IV–TR (DSM-IV-TR), the comprehensive term pervasive developmental disorders (PDD) includes autistic disorder, Asperger’s syndrome, Rett’s disorder, childhood disintegrative disorder, and pervasive developmental disorder – not otherwise specified (American Psychiatric

Association, 2000). The commonly-used term *autism spectrum disorders* (ASD) is utilized in this study to collectively describe these conditions which are all characterized by markedly abnormal or impaired development in social interaction and communication and a markedly restricted repertoire of activity and interests that manifest in children before the age of three years. The earliest published descriptions of autistic behavior stem from the 1800's, but the condition has probably existed throughout history. The child psychiatrist, Leo Kanner (1943), first identified it as a disorder of "autistic disturbances of affective control." Children affected with autism spectrum disorders are typically unable to respond appropriately in a social environment and do not develop relationships with peers or share enjoyment, interests or achievements with others. Verbal communication is impaired due to a lack or delay in spoken language as well as the inability to maintain a reciprocal conversation, and often includes hallmarks such as echolalia, out-of-context or repetitive phrases, and pronoun reversal (Sadock & Sadock, 2003). The child with ASD classically appears oblivious to those around him, avoiding eye contact and showing no awareness of the needs or emotions of others, but exhibiting stereotyped or repetitive patterns of behavior such as hand flapping. Problems with development of cognitive skills are common, and as many as 75% of those affected with autism spectrum disorders also exhibit mental retardation, ranging from mild (30%) to profound (45-50%) impairment (Sadock & Sadock, 2003). Children display limited attachment behaviors and do not always acknowledge those persons closest to them, such as parents, but often react strongly to any change in their environment or daily routine. Responses to sensory stimuli may vary from hypo to hypersensitivity. Affected children may have the intent to establish relationships but are prevented from doing so due to poor

comprehension of social behaviors and lack of skills such as joint attention, which is the ability to attend to multiple cues or to coordinate attention between people and objects (Ruble, 2001). Cognitive skills necessary to appreciate the concept of humor are usually absent. Interactive or spontaneous imaginative play is typically nonexistent, but impulsivity, hyperactivity, aggressiveness, mood swings, self-injury, and temper tantrums are quite common (American Psychiatric Association, 2000). Up to 25% of those people affected may also develop seizures. The DSM-IV-TR reports a median prevalence rate for autism spectrum disorders of 5 per 10,000 individuals, with reported rates from 2-20 per 10,000. Sadock and Sadock (2003) report a prevalence of 8 per 10,000 for autism spectrum disorders, with ranges of 2-30 per 10,000 reported. Kabot, Masi, and Segal (2003) describe one study defining rates as high as 1 per 250 individuals for ASD, with an average incidence in the literature of 1 per 500. The Centers for Disease Control's Autism and Developmental Disabilities Monitoring Network released data in 2007 describing that 1 out of 150 eight year-olds in multiple areas of the United States were affected by ASD; the average is now reported to be 1 out of 110 (Centers for Disease Control, 2008). ASD affects all racial, ethnic and socioeconomic groups equally, but occurs 4-5 times more frequently in males. While noting an increase in prevalence statistics in recent years, the CDC questions whether this increase is an accurate reflection of more cases or a change in how symptoms are identified and classified.

The cause of ASD remains unknown, although most researchers suspect a genetic susceptibility coupled with unidentified factors present in pre- or postnatal development that trigger symptoms (Kabot et al., 2003). There is a decided familial risk; if one child has autism spectrum disorders, the family has a 2-8% chance of having a second child

affected (Centers for Disease Control, 2008). In identical twins, if one is affected, the other child has a 75% risk factor, while a non-identical twin has only a 3% risk (Centers for Disease Control, 2008).

Goals of therapy.

Autism spectrum disorders cause profound deficits in social reciprocity skills, which is the main source of impairment for those affected no matter what the level of cognitive or language abilities (Ruble, 2001; White, Keonig, & Scahill (2007), and this impairment does not improve simply with development. Children affected by autism spectrum disorders, especially adolescents, are often shunned by peers and lead relatively isolated lives (Sadock & Sadock, 2003), particularly as they become more aware of their disability. Problems with social interaction may lead to academic and occupational underachievement and lack of community inclusion, as well as mood and anxiety problems in later years (Ruble, 2001; White et al., 2007); therefore, social development in autism spectrum disorders is crucial for positive adult outcomes and optimal quality of life. Only a small percentage of those affected by autism spectrum disorders will go on to function as completely independent adults (American Psychiatric Association, 2000), although about one-third may achieve at least partial independence.

Appropriate interventions for ASD should address social and daily living skills; language and communication; play and leisure skills; academic achievement; reduction of maladaptive behaviors; and optimization of medical care (Myers & Johnson, 2007). The structure of the therapy should work to improve attention, engagement, reciprocal interaction, and communication. The acquisition of organizational skills such as following directions and task completion coupled with the ability to respond to

appropriate motivational strategies can help prepare the child for success in the classroom (National Research Council, 2001).

As children with ASD may have more limited opportunities for peer interaction, training in a group format may be most ideal. Programs should encourage social motivation and foster self-awareness and self-esteem in a nurturing, enjoyable environment that intersperses new skill acquisition with prior-mastered skills while reinforcing positive behaviors (White et al., 2007).

The primary goal of therapy is to maximize the child's ultimate functional independence and quality of life while minimizing core features of autism spectrum disorders (Myers & Johnson, 2007). The lifelong goal (Kabot et al., 2003) is independence in home and community life. Although intervention and treatment is universally recommended at the earliest possible age once symptoms become apparent, there are few empirical studies to support any specific types of therapeutic programs (Kabot et al., 2003).

Equine-Assisted Activity and Therapy

The modern world first noted the capabilities of persons with disabilities to enjoy equine competition in 1952, when former polio victim Liz Hartel won a silver medal in the Helsinki Olympics (Bertoti, 1988; Casady & Nichols-Larsen, 2004; Kaiser, Spence, Lavergne, & Vanden Bosch, 2002;). The history of the concept of *horse as healer*, however, goes back to the ancient Greeks, when horseback riding was recommended to raise the spirits of the chronically ill (Benda, McGibbon, & Grant, 2003; Macauley & Gutierrez, 2004), or to the rehabilitation of Roman soldiers wounded in battle (Benda et al, 2003). German physicians recommended horseback riding for patients suffering from

mental illness in the 1600's (Benda et al., 2003; Frewin & Gardiner, 2005). Chassaigne undertook the first systematic, though subjective, study of the effects of riding upon hemiplegia, paraplegia, and other neurological disorders in the 1870's (cited in Bertoti, 1988), noting improvements in balance, muscle strength, joint suppleness, and morale. Therapeutic riding became widely appreciated in Europe during the 1950's and 1960's, and arrived in North America in the late 1960's and early 1970's with the founding of therapeutic programs in Canada and the United States. There are now more than 800 accredited therapeutic riding facilities in North America (NARHA, 2010).

As equine programs have expanded and diversified in the United States, so has the related vocabulary. The *gold standard* accreditation organization, the North American Riding for the Handicapped Association (NARHA), uses the term Equine-Assisted Activity and Therapy (EAAT) to cover therapeutic riding, hippotherapy, and other non-mounted activities such as Equine Facilitated Psychotherapy (EFP). EFP utilizes the horse as an adjunct therapeutic tool for experiential psychotherapy, in the presence of a licensed therapist, for clients with “any significant variation in cognition, mood, judgment, insight, anxiety level, perception, social skills, communication, behavior, or learning” due to psychological disorders, environment, or major life changes, and “provides the client with opportunities to enhance self-awareness and re-pattern maladaptive behaviors” (NARHA, 2008). Another accreditation group, the Equine Growth and Learning Association (EAGALA), also promotes training for equine psychotherapy for emotional growth and learning, which they term Equine Assisted Psychotherapy (EAP).

Mounted Equine-Assisted Therapy: Therapeutic Riding and Hippotherapy

There are two types of equine therapy involving mounted work: *hippotherapy* and *therapeutic riding*. In hippotherapy, the horse serves only as a treatment tool, providing a continuous, rhythmical motion with the client on his back. The horse influences the rider rather than the rider influencing the horse. Hippotherapy is considered a medical intervention and must be provided by a physician or a licensed physical or occupational therapist, with the additional aid of horse leaders and sidewalkers to control the animal and support the rider. Benefits of hippotherapy include mobilization of the pelvis, spine, and hip joints; normalization of muscle tone and symmetry; strengthening of weak muscles; improvements in standing posture; stimulation of deep proprioception in joints; sensory integration; increased coordination; awareness of one's body in space; and normalization of movement patterns (Hamill, Washington, & White, 2007). The main goal of hippotherapy is to modify a rider's impairment through the use of a prescribed riding program (Haehl, Giuliani, & Lewis, 1999), and is especially effective for riders with impaired postural control and coordination, as well as speech and language deficits (Macauley & Gutierrez, 2004). The typical hippotherapy rider might have impairments that would prevent more active participation in a therapeutic riding class.

Therapeutic riding, in contrast, utilizes the same types of exercises as hippotherapy, but also requires the rider to learn the basics of guiding and controlling his mount, with the long term goal of independent riding if possible (Hamill et al., 2007; Haehl et al., 1999). Therapeutic riding can be of real benefit to riders by promoting muscle relaxation, strengthening weak muscles, and developing balance and

coordination. The rider maneuvers his mount around the riding ring, using hand and leg aids, demonstrating his ability to make the horse turn, stop, start, and change speeds or gait. Aided by the horse's leader and the sidewalkers, the rider might go through a series of stretching exercises, be asked to ride with eyes closed to concentrate on balance, or throw and catch objects with the helpers at a variety of angles. In the typical group riding situation, games which incorporate physical skills with cognitive processes are often played during the session. These might involve relay races, obstacle courses, drill team formations, or any creative plan that fits the needs of the particular riders. Both hippotherapy and therapeutic riding can provide benefits for a large number of physical, cognitive, social, and emotional disabilities.

There are similarities and dissimilarities between therapeutic riding and hippotherapy. However, the similarities in positive effects from very limited scientific studies warrant more research in both areas. The current study will focus on therapeutic riding only.

Physical benefits of mounted equine-assisted therapy.

The mere act of positioning a subject atop a mobile equine exacts a physical response. The walking gait of the horse is quite similar to the human walk, moving at a rate of 100-120 steps per minute compared to man's 110-120 steps. In addition, the horse's limb displacement and acceleration and deceleration through the stride causes the rider's pelvis to tilt laterally and rotate anteriorly and posteriorly in a continuous pattern (Cherng, Liao, Leung, & Hwang, 2004; Hamill et al., 2007), thus allowing the mounted horse to serve as a therapeutic walking simulator. As the animal is asked to stop, start, turn, and alter tempo, the rider is constantly required to accommodate to the postural

changes in order to stay aboard by producing compensatory movements to reduce displacement of the center of gravity (Casady & Nichols-Larsen, 2004). Riding provides training for the trunk in coordination, balance, and reaction time, with constant alterations between muscle tension and relaxation that encourages development of adaptive behaviors and movement strategies on a dynamic surface (Casady & Nichols-Larsen, 2004; Hamill et al., 2007). The consistent, rhythmic movement of the horse as well as its warmth, appearance, smell, and furry coat sends an array of sensory signals to the central nervous system, affecting motor, visual, proprioceptive, tactile, and vestibular systems (Benda et al., 2003; Casady & Nichols-Larsen, 2004) that are necessary for development of motor control (Cherng et al., 2004). When a rider performs certain functional exercises such as reaching out for objects while aboard this unique physical therapy modality, he or she can work to create increased body awareness, balance, and joint flexion, extension and rotation (Hamill et al., 2007), as well as improved respiratory and motor control of speech (Macauley & Gutierrez, 2004). The walking horse provides up to 100 impulses per minute in which to practice both anticipatory and reactive postural control (Casady & Nichols-Larsen, 2004). Since the development of postural control is crucial to normal gross motor activities (Cherng et al., 2004), horseback riding could affect the successful acquisition of motor skills in other functional tasks.

Psychological and social benefits of mounted equine-assisted therapy.

Although potential physical benefits derived from therapeutic riding and hippotherapy have traditionally received the greater focus, those involved with such programs have also delineated many social, cognitive, and emotional effects. The relatively recent development of equine facilitated psychotherapy is predicated on these

types of potential benefits, but such gains have been commonly observed in riding activities as well. Taking on the challenge of remaining on top of such a large and powerful animal can result in increased self-confidence and a sense of mastery (Bizub, Joy, & Davidson, 2003) that may be transferred to other endeavors. The horse, unlike other animals typically used for therapeutic purposes, is by nature a prey animal. He regards human advances as potentially threatening and can react very quickly with a classic flight response – running away from the perceived threat. The successful rider or handler must overcome any innate fear and present a calm, positive persona to the animal. Although the horse initially plays a non-judgmental role in the human-equine partnership with few prior expectations or prejudices, he will effectively mirror the human behaviors and emotions directed toward him and provide immediate feedback on his interpretations (Frewin & Gardiner, 2005). Safe and successful interactions with this animal demand development of careful attention, concentration, respect, empathy, and patience. The horse can serve as a buffer from stress and anxiety (Bizub et al., 2003), thus providing relaxation and recreation as well as the opportunity to develop personal responsibility and to learn about relationship-building (Kaiser et al., 2004). While some believe that man has an inherent desire for *risk exercise* that draws individuals to challenges such as horseback riding (Benda et al., 2003; McGibbon & Grant, 1998); Mackinnon, Noh, Laliberte, Lariviere, & Allan, 1995), others would describe a common human desire to participate in sport and recreational activities that is often quite limited or totally denied to persons with disabilities. Success in riding is not an easy task for able bodied people; Benda et al., (2003) describe the significance of the “psychological

enhancement of moving freely through space on a powerful animal without constraints or assistive devices” for those with limiting physical disabilities.

Participation in a therapeutic riding class requires interaction not only with the horse, but also with instructors and volunteers who serve as horse leaders or sidewalkers to help maintain rider safety. Volunteers and classmates (Bizub et al., 2003) can provide positive social support and a sense of group cohesiveness. Clients must learn to take instruction and follow directions for mounted activities within their group, encouraging focus, listening skills, communication, and social interaction. Successive mastery of riding skills can encourage increases in self-efficacy, self-esteem, self-concept, and a sense of control. Children with disabilities who resent traditional therapies often find lasting motivation to participate in horse related activities, thus encouraging more positive compliance and interest in learning than they might exhibit in more traditional settings. Positive experiences in therapeutic riding can lead to improved self-concept, locus of control, behavior, and affect (Macauley & Gutierrez, 2004), and positive affect in turn encourages the brain to process sensory data more effectively and to release chemicals that help reduce stress, relax muscles, and provide a sense of well being. Therapeutic riding clients are encouraged to use interpretation and insight to develop successful strategies in working with horses (Frewin & Gardiner, 2005), and within their group. The most succinct psychosocial goal, as described by Bizub et al., 2003 is “learn more, do more, be more.”

Summary of Research on Benefits of Mounted Equine-Assisted Therapy

Research on physical benefits of mounted equine-assisted therapy.

Despite a plethora of anecdotal reports of the value of hippotherapy and therapeutic riding for clients representing a wide range of disabilities, there are relatively few peer-reviewed studies to support such claims. Most research has focused on the purported physical benefits of these two therapies, and most studies have focused on subjects diagnosed with CP. Bertoti (1988) assessed standing posture in 11 children with spastic CP in the first data-based study and found statistically significant improvement following a 10-week program of therapeutic riding. Subjective clinical impressions such as decreased fear of movement, decreased hypertonicity, and improved weight-bearing and functional balance were also noted by physical therapists and parents. In 1998, MacPhail et al. videotaped and analyzed seven non-disabled riders and six riders with varying degrees of CP to determine if both groups would respond with normal equilibrium reactions in response to the displacement caused by the pelvic motion of the horse. Results reported that riders with cerebral palsy had more trouble controlling trunk movements and maintaining their center of gravity over the base of support. Those riders with diplegic CP attempted to adjust their equilibrium reactions with greater success than those with quadriplegic CP, leading the author to suggest that this therapy may actually be reinforcing abnormal compensatory mechanisms rather than encouraging a more normal postural response in the more severely affected riders. This therapy might not necessarily be detrimental for those individuals, however, and they might also still benefit from increased muscular strength and joint range of motion. MacPhail's kinematic analysis in this 1998 study demonstrated that the horse's pelvic movement at a walk

causes a more complicated pattern of displacement for the rider than previously thought, thus requiring a more demanding postural response.

MacKinnon, Noh, Lariviere, et al. (1995) were the first to utilize a number of both quantitative and qualitative tools to evaluate both physical and psychosocial effects of a once-weekly, six month long therapeutic riding program on 19 children, aged 4-12 years, with mild to moderate CP. Although improvements in physical abilities were shown in some of the quantitative tools measuring gross and fine motor control, the only statistically significant result occurred in the skill of grasping. Interestingly, however, the qualitative measures consisting of the riding instructor's journals, therapists' final client summaries, parental report sheets, and videotapes of the riding sessions indicated changes not noted in the quantitative measures. Weekly progress in areas such as mounted sitting position, grip and use of reins, trunk control, pelvic mobility, strength, balance, and gait were commonly noted from all sources. The researchers believed these contrasts could be interpreted as self-fulfilling prophecies on the part of the parents and staff or the failure of available standardized tools to adequately measure change. The length of time necessary to demonstrate improvement in chronically disabled populations could also preclude measurable changes, despite the perceived effectiveness of the intervention. In 2007, Hamill, Washington, & White collected similarly conflicting data including the standardized Gross Motor Function Measure (GMFM) and the Sitting Assessment Scale as well as a parental questionnaire to examine the effects of a 10-week hippotherapy session (one session per week) on sitting posture for three children with CP, aged 27-54 months. Although no statistically significant improvement was shown on the standardized measures, the questionnaires revealed perceived improvement in the

children's trunk control and sitting posture, as well as appreciation for the overall value of the intervention. Once again, researchers believed the discrepancy in results could reflect parental expectations for positive results, or improvement in motor function that the tools employed could not measure.

Many other riding therapy research teams have incorporated the GMFM into their studies. McGibbon et al. (1998) used a repeated measures-within-participants design to evaluate the effects of an eight week hippotherapy program for five children with spastic CP on energy expenditure during walking; gait dimensions of stride length, velocity, and cadence; and performance on the GMFM. All five children showed a statistically significant decrease in walking energy expenditure, with a statistically significant increase in the Walking/Running/Jumping phase of the GMFM. Similarly, in 2002, Sterba, Rogers, France, and Vokes also used the GMFM to evaluate 17 children with spastic cerebral palsy at multiple six week intervals before, during and after an 18-week therapeutic riding intervention. The researchers also utilized the Children's Functional Independence Measure (WeeFIM) to determine each rider's level of independence in self-care, sphincter control, transfer ability to and from a wheelchair, locomotion, communication, and social cognition. There were no changes in WeeFIM scores during the study, but scores in the GMFM began to increase significantly after Week 12 of riding, and remained elevated even six weeks following the program's end. Utilizing electromyography to evaluate symmetry of trunk and upper leg muscle activity in 15 children with spastic cerebral palsy, aged 4-12 years, Benda et al. (2003) found that participants who spent eight minutes on a hippotherapy horse demonstrated improved muscle symmetry compared to those who spend eight minutes sitting astride a barrel,

suggesting that the movement of the horse was more effective than passive stretching activities. In 2004, Cherng et al. also used a repeated measures, within-participants design to assess potential gains in gross motor function and muscle tone of hip adductors for 14 children with spastic CP, aged 3-12 years, who participated in a 16-week therapeutic riding program. Again, mirroring the earlier work of McGibbon et al. (1998) and Sterba et al. (2002), the authors reported significant results in the total GMFM score and the GMFM Dimension E (Walk/Run/Jump) score. No significant changes in muscle tone were noted.

Casady & Nichols-Larsen (2004) employed both the GMFM and the Pediatric Evaluation of Disability Inventory (PEDI) as outcome measures to determine whether a 10-week hippotherapy intervention had an effect on the functional development of 10 children with CP, ages 2-6. Whereas the GMFM measures gross motor ability in a clinical setting, the PEDI identifies functional performance in the home and community through functional skills, mobility, and social function. Results demonstrated a significant treatment effect through the PEDI total and social scores and the GMFM total score and crawling/kneeling score, showing the potential of hippotherapy to be a valuable treatment tool that maximizes function in a motivating setting. Haehl, Guiliani, & Lewis (1999) first analyzed the kinematic relationship between the rider's trunk and the horse's back to describe postural orientation, postural stability, and temporal phase relations for both novice and experienced riders. They then examined the influence of 12 weekly hippotherapy sessions on postural control, coordination, and function for two children with CP. Although only one child demonstrated significant changes in functional mobility through the PEDI measures, by the last riding session both children did adopt

the rhythmic biphasic movement patterns used by the experienced riders to balance successfully on the horse.

Studies focusing on subjects with diagnosed conditions other than CP include Lehrman and Ross's (2001) case study that described the benefits of a hippotherapy program for a 9 year-old with visual impairment, moderate mental retardation and limited coordination of her trunk and neck. Following a 10-week program carried out by the authors, an assessment demonstrated increased independent balance, walking ability and range of trunk rotation. Using a design similar to McGibbon et al.'s (1998) hippotherapy study, in 2002 Winchester, Kendall, Peters, Sears, & Winkley evaluated a seven-week therapeutic riding program to assess motor function and gait speed in seven children, aged 4-7 years, who exhibited developmental delays due to various diagnoses. In contrast to MacKinnon, Noh, Lariviere et al. (1995), but comparable to McGibbon et al. (1998), this study reported significant improvement in the GMFM scores, although gait speed was unaffected. Hippotherapy was found to provide short term relief of spasticity in the lower extremities due to spinal cord injury in a study by Lechner et al. (2003). In this study, physical therapists rated the level of increased muscle tone through a series of joint flexion and extension movements prior to and immediately following a single hippotherapy session for 32 patients, aged 16-72 years. Researchers found substantial decrease of muscle tone following 93% of the hippotherapy treatments, encouraging them to perform further studies on the duration of this effect.

Research on psychosocial benefits of mounted equine-assisted therapy.

A greater shortage exists in the literature regarding assessment of the potential emotional, cognitive, or social benefits resulting from mounted equine-assisted therapy.

Cawley, Cawley, and Retter (1994) were among the earliest to focus on potential psychosocial benefits resulting from equine assisted therapy for 23 adolescents, aged 11-15 years, who were identified by their school system as having special educational needs such as severe emotional handicap, mental retardation, or learning disabilities. Results from the paper-and-pencil Piers-Harris Children's Self-Concept scale, administered before and after an eight-week therapeutic riding program, showed a small increase in self-concept that was not statistically significant except for scores on the Behavior subtest, which measures the extent to which a student admits or denies problematic behavior. Researchers noted that an interview format might have elicited more information from participants. Younger riders showed more improvement, leading the authors to recommend intervention at an earlier age. MacKinnon, Noh, Lariviere et al. (1995) utilized the Vineland Adaptive Behavior Scales to assess self-adequacy, socialization, and global behavior; the Harter Self-Perception Scale (completed by parents) to measure perceived adequacy in scholastic and athletic competence, social acceptance, physical appearance and behavioral conduct; and the Child Behaviour Checklist to evaluate social competence, emotional adjustment, and behavior problems. Although these quantitative tools failed to confirm statistically significant improvements in these areas, the qualitative measurements employed revealed conflicting results: Therapist records indicated progress in social interaction and confidence, and parent surveys reported improvements in motivation, willingness to try other new activities, self-confidence, self-esteem, pride, cooperation, and enthusiasm. An analysis of video displaying the riders' facial expressions during riding sessions also seemed to demonstrate increased levels of satisfaction and self-confidence. Similarly, Sterba et al.

(2002), found no significant improvements using the WeeFIM to measure changes in riders' levels of communication and social cognition following a therapeutic riding program, but informal surveys of parents reported observable improvements in their children's speech, self-esteem, and emotional well-being, as well as a perceived high degree of enjoyment in the riding activity, which is more conducive to participation and compliance. Besides improved physical measurements, Lehrman and Ross (2001) also described improved verbalization and an increase in visual attention span and fixation time for that case study's nine year-old child with visual impairment and moderate mental retardation (MR). The motivation and opportunities provided during a hippotherapy session to practice communication, listening, and language skills (including issuing commands to the horse) were considered influential in the significant improvement in PEDI social function scores by Casady & Nichols-Larsen (2004). Macauley and Gutierrez (2004) examined the effectiveness of a hippotherapy intervention versus a traditional therapy program for three boys, ages 9-11 years, diagnosed with language-learning disabilities (LLD). Noting that 45.2% of the population with disabilities have co-existing learning disabilities (LD), and as many as 75% of children with LD's also have LLD's, the authors stressed the need for innovative treatment environments that will motivate students to fully participate and work toward achieving their full potential. This population appears to be more at risk to experience negative emotional affect, which correlates with a decreased ability to respond to therapies that are deemed difficult or unpleasant. Questionnaires completed by both the participants and their parents following each type of therapeutic intervention demonstrated equally effective self-reported gains in speech and language abilities and

progress toward therapy goals, but results also showed that the boys were clearly motivated to attend and participate in the enjoyable hippotherapy sessions, often speaking with friends about this therapy experience. Bizub et al., (2003) designed a qualitative study on the psychosocial effects of a 10-week therapeutic riding program for five adults with schizophrenic spectrum disorders who were undergoing psychiatric rehabilitation. Goals for this population typically focus on facilitating and maximizing long term recovery, self-sufficiency and community integration. *Alternative therapies* such as therapeutic riding can potentially help patients to acquire new interests, build social skills, develop self-efficacy, and experience decreased personal isolation. Semi-structured interviews were conducted with the participants following the intervention and again six months later. Themes identified from the transcribed material included the process of developing group cohesion, group identity, and social support among the riders; development of relationships with the volunteers who assisted in the program; the challenge of overcoming fear or riding and experiencing mastery that carried over into subsequent new activities; opportunities to practice coping skills; increased self-esteem and self-efficacy; improved motivation to more actively participate in recovery and life in general; the positive effects of exercise on relaxation and sleep; a normalizing experience; increased overall sense of well-being; a greater sense of hope for the future; and above all, the opportunity to form a relationship and bond with the horse, which sets this type of intervention apart from all others. The horse was viewed as a non-judgmental source of support that helped diminish a sense of self-isolation. Riders enjoyed the physical contact and the experience of working as a team while developing respect, empathy, and love for this initially-frightening large animal. Follow-up interviews

months later further validated the significant impact of this program. Although finding no significant increases in GMFM, health, or quality of life measures for subjects with cerebral palsy participating in a therapeutic riding program in 2008, Davis et al.'s qualitative data from primary caregivers focusing on quality of life supported a recommendation for further research that would analyze the impact of that intervention on a child's overall function. Kaiser et al. (2002) presents the only study in the literature to examine psychosocial benefits in therapeutic riding for a non-disabled population of 16 children ages 7-17 who attended a five day riding camp. Three measurement tools were administered to the participants on the first and last day of the camp. The Peds Quality of Life scale and the Self Perception Profile for Children produced no significant changes. Data analysis of the Children's Inventory of Anger, however, which measures frustration, physical aggression, peer relationships and authority relations, demonstrated significant decreases in total score and all subscales except frustration, leading researchers to believe such an intervention could prove especially useful for at-risk populations.

Finally, in 2009 Bass, Duchowny and Llabre presented the results of the first study focusing on children with autism spectrum disorders participating in a 12-week therapeutic riding program. Utilizing quantitative measures of sensory processing as related to social function, significant results were noted in areas of sensory sensitivity and integration, directed attention, decreased inattention and distractibility, and social motivation. The authors recommended analysis of the effects of therapeutic riding on the various aspects of social functioning following a longer, more intensive intervention.

Summary

This chapter described the etiology, symptoms, and therapeutic goals for autism spectrum disorders and gave a general history of equine-assisted therapy and its current applications. The two common mounted equine therapies, therapeutic riding and hippotherapy, were introduced along with anecdotal reports of their physical and psychosocial benefits. A literature review of published studies for both therapeutic riding and hippotherapy clearly demonstrated a lack of scholarly focus on the potential value of mounted equine therapy programs for participants diagnosed with autism spectrum disorders. The next chapter will describe the methodology of the current study, including the design and procedure, description of subjects, and the analysis plan for the data collected.

Chapter Three

Procedures

The purpose of this study was to examine the perceived benefits of a therapeutic riding program intervention for children with autism spectrum disorders. The qualitative design provided the researcher with a greater understanding of the particular experiences of the intervention that could potentially help maximize the physical, emotional, and social health of this population, rather than what could be captured with standardized instruments. The research protocol was initially submitted to and approved by the University of Kentucky's Institutional Review Board. This chapter will describe the methodology of the current study, including the selection process and description of the subjects, the study design and procedure, and the analysis plan for the data collected.

Method

Subjects.

All subjects interviewed were a convenience sample, as all were involved with the therapeutic riding program offered at Central Kentucky Riding for Hope (CKRH), a non-profit corporation located at the Kentucky Horse Park in Lexington, Kentucky. CKRH has been in continuous operation since 1981, with a stated mission "to enrich the community by improving the quality of life and health of children and adults with special physical, cognitive, emotional and social needs through therapeutic activities using the horse" (Central Kentucky Riding for Hope, 2010). CKRH has been nationally accredited as a riding center since 1987 by the North American Riding for the Handicapped Association (NARHA), the *gold standard* organization in this field that conducts both

facility and instructor certification for equine-assisted therapy programs. In 1998 CKRH became certified by NARHA as a Premier Accredited Center, one of only two such accredited centers in Kentucky. In 24 years of operation it has served over 1,000 students with disabilities, many of whom have continued to ride at the facility for many years.

CKRH therapeutic riding classes offer a variety of activities and exercises that target fine and gross motor skills; balance, strength, and coordination; proprioception and tactile senses; cognitive processing skills; and teamwork and social interaction. Both private and group lessons are offered, dependent on the age and needs of the individual client, the level of riding skill, and the severity of the disability. Classes vary from 30-60 minutes in length and typically include a warm-up period during which the client is asked to perform stretching exercises while mounted; directed riding activities designed to enhance specific skills for guiding and controlling the horse at various speeds; group games such as treasure hunts or relay races; and a cool down period. Depending on their level of ability, riders may be accompanied by a horse leader and one or two sidewalkers for stability and safety, or they may ride more independently, with only minimal guidance from the horse leader or no leader at all.

Prior to the start of data collection, a brief description of the research project was submitted to and reviewed by the CKRH board of directors (see *Therapeutic Riding Research Project* in Appendix). Although the current study is limited to this facility, the fact that the program and its instructors have met and must maintain established industry standards of quality, professionalism, and safety in equine-assisted activities may allow for some generalization to other similar programs accredited by NARHA.

Instructors.

The CKRH Program Director initially provided the researcher with a list of contact information for eight of the facility's 12 therapeutic riding instructors who were recommended for inclusion in a focus group on the basis of their length of experience with the therapeutic riding program and their experience working with clients with autism spectrum disorders (ASD). The investigator then contacted the eight instructors by e-mail or phone and invited them to attend a focus group session to be held at the CKRH facility. Although the majority of CKRH instructors are volunteers, all are required to have completed the certification requirements of the North American Riding for the Handicapped Association. Although all eight instructors were willing to share their experiences with the researcher, three had scheduling conflicts that precluded their participation in the scheduled focus group. Five instructors agreed to take part in the discussion, including three volunteer instructors (one male and two female) and two female staff instructors. All five were certified by NARHA at the *registered level*, having successfully completed an instructor certification course requiring each individual to demonstrate horsemanship and riding skills, lesson planning and instructing abilities, and knowledge of disabilities and NARHA standards and guidelines. All NARHA-certified instructors must maintain annual CPR and specified continuing education requirements. CKRH also provides yearly instructor workshops on topics related to specific disabilities and strategies for working with clients.

CKRH has two paid instructors on staff. One is the Lead Instructor and the other functions as both Program Director and class instructor. All other instructors contribute

their services as volunteers. Three of the instructors in the focus group had two to three years of experience at CKRH, with prior teaching experience in other venues; the other two had 19 and 24 years experience in the program as instructors. The researcher provided dinner for the subjects and also offered \$25 gasoline cards as incentives for the instructors' participation in the initial focus group.

Parents and other family members.

To preserve client confidentiality, an initial e-mail communication was sent from the CKRH Program Director seeking permission from family members of 15 current clients diagnosed with autism spectrum disorders to be placed on a contact list for possible participation in the study. All family members gave permission to be approached by the researcher, who was then given a list with contact information. Letters of recruitment (see Appendix B) containing consent forms and self-addressed stamped return envelopes were then mailed to each legal guardian on the contact list by the investigator. A weekly class schedule for all 15 clients, who reported to six separate CKRH instructors, was provided to the researcher by the CKRH Program Director. As consent forms (see Appendix C) were received from the listed contacts, interviews were scheduled during each client's lesson time during a three-week period of the fall 2008 CKRH riding session with 16 female and five male family members of the 15 children. Seventeen of the subjects were parents, three were grandparents and one was the client's aunt who was a primary caregiver. One parent had two children in the program. Due to scheduling variations, family members other than the individual initially agreeing to participate, such as grandparents, sometimes accompanied the client to the lesson and

agreed to be interviewed, signing the necessary consent forms on site. Profiles of the therapeutic riding participants themselves are located in Appendix E.

Staff members.

CKRH maintains a staff of four full time and two part time employees. The two staff members with the greatest length of experience with the program, the female Executive Director and the female Program Director, were recruited in person for semi-structured interviews. The Executive Director's duties are primarily administrative in nature, with a great degree of contact with parents and caregivers of clients. She has held this position at CKRH for five years. The Program Director, who has held this position at CKRH for three years, is responsible for all day to day activities of the therapeutic riding program such as scheduling of classes and instructors, insuring the health and safety of the animals, and supervising the lead riding instructor and equine manager. She also serves as a class instructor.

Class volunteers.

Over 250 volunteers assist in the operation of the CKRH facility in a variety of capacities. A class lesson volunteer must be 17 years of age or older, must attend a volunteer orientation and a training session specific to their position, such as sidewalker or horse leader. Volunteers are required to commit to serving at least two hours per week for consecutive weeks of a class session, typically 8-10 weeks on length, and are strongly encouraged to attend continuing volunteer education and training opportunities provided by the facility.

The CKRH Program Director initially explained the nature of the research project via an e-mail communication to a list of twelve of the program's class volunteers who

were selected by the Program Director as potential participants based on length of time with the therapeutic riding program and experience during riding sessions with clients with autism spectrum disorders. Following the initial e-mail, the investigator contacted the 12 volunteers via e-mail and invited them to participate in a focus group to be held at the CKRH facility on a non-lesson evening, hoping to have a total of 4-6 participants to keep the discussion manageable. After initially receiving responses from only two volunteers, another e-mail was distributed to the list, asking for alternate scheduling preferences, which elicited three more positive responses. Due to scheduling conflicts, however, it became necessary to hold two separate group meetings.

The first focus group included one male with 2 ½ years of experience in the CKRH program who volunteered from one to four evenings per week, and two female volunteers, one with two years of experience as a class volunteer and the other with 23 years at CKRH. The second focus group included one male with one year of CKRH class experience and one female with two years of experience. The researcher provided a meal for both focus group sessions, and also offered \$25 gasoline cards as incentives for the volunteers' participation.

Design and procedure.

This qualitative study utilized multiple methods including focus groups, semi-structured personal interviews, and analysis of the therapeutic riding program's client records to gain an in-depth perspective on the perceived benefits of a therapeutic riding program for subjects with a primary diagnosis of autism spectrum disorders (ASD).

Instructor focus group.

Initially, a focus group was conducted at the CKRH facility on a non-lesson evening with three volunteer and two staff instructors from the therapeutic riding program with a meal provided by the researcher. A list of guiding questions prepared by the researcher and approved by a committee co-chair that related directly to the research questions was utilized by the researcher in moderating the discussion (see Appendix D). This very interactive group session provided both an initial overview of the therapeutic riding program for populations with ASD and also a sampling of the instructors' opinions on the perceived physical, psychological, and social benefits provided to their students and the multiple factors involved in this process. As many of the instructors had several years of service in the program, their insights and observations for a large number of clients provided material for additions and revisions to the initially-proposed questions for the semi-structured interviews with client family members and CKRH staff.

All participants signed informed consent documents prior to the session (see Appendix C), which was 90 minutes in length. The researcher served as a moderator in guiding the group discussion, which was audiotaped with the permission of all participants. A research assistant also took written notes to assist in transcription of the audio recordings following the session. The research assistant had successfully completed the University of Kentucky's Collaborative IRB Training Initiative (CITI) for non-medical researchers in human subject protection training prior to the event.

Semi-structured interviews with parents and family members.

After compilation of data from the instructor focus group and revision and approval by a committee co-chair of the initial list of guiding questions (see Appendix

D), semi-structured personal interviews were conducted until saturation was reached and no new data were being presented by parents or other family members of children diagnosed with an ASD who were currently enrolled in the therapeutic riding session at CKRH. These subjects were selected to provide in-depth descriptions of their children's experiences and the perceived benefits derived from participation in the therapeutic riding program, as many of the clients themselves have very limited communication capabilities. Interviews were held with a total of 21 parents or related caregivers of the 15 children. In two cases, both the mother and father of the client were present for the interview. In the instances when grandparents of two of the children were interviewed on-site because they had transported the participants to CKRH, telephone interviews were also conducted with those two children's mothers at a later time. The on-site interviews were all held during the children's lessons at CKRH over a three-week period and varied in length from 30-60 minutes. All interviews were audiotaped with the permission of the subjects. Although guiding questions were used, interviewees were encouraged to discuss what was most meaningful to them in their child's experience at CKRH, which often led to additional topics not specified in the sample questions. This in turn resulted in the addition of new sample questions to the researcher's list as the interviews proceeded.

Semi-structured interviews with CKRH staff members.

The Executive Director and the Program Director of Central Kentucky Riding for Hope were also selected for personal interviews due to their collective observations of many different program participants with a diagnosis of ASD over a longer period of time than any other CKRH employees. Interviews with the two staff members were also held

in the offices of the riding facility and consent forms were signed prior to each session (see Appendix C). Each interview was audiotaped with the permission of the participant, and a list of sample questions (see Appendix D) relating back to all research questions and approved by a committee co-chair was used to guide discussion. The Executive Director's interview was 45 minutes in length and the Program Director's lasted 60 minutes.

CKRH class volunteer focus groups.

Due to scheduling conflicts, it was necessary to conduct two separate focus groups for class volunteers. Three participants in the first group and two in the second signed consent forms (see Appendix C) prior to the interactive discussion, which was also held at the CKRH facility on a non-lesson evening with a meal provided by the researcher. The volunteers were asked to provide feedback on general comments solicited during the previous parent and family member interviews. The researcher served as the moderator in both group discussions, using a list of sample questions (see Appendix C) approved by a committee co-chair and related to all research questions to guide discussion. Each focus group lasted approximately 60 minutes and was audiotaped with the permission of all focus group participants. A research assistant took notes for the first focus group, but due to the smaller number of participants in the second group, only an audiotape was used to record the discussion.

Review of CKRH client records.

With parental permission from the initial consent form, specifically-listed records were made available by CKRH to the investigator (see Appendix F). These records included materials such as: annual application forms completed by a parent or legal

guardian; physician's statements and detailed medical histories including diagnosis, identified symptoms, and problem areas to be targeted in therapy; evaluation reports from the client's CKRH intake evaluation conducted by the CKRH Program Director; instructor plans and session notes for each lesson that contain each lesson's objectives and progress reports for the client; and Rider-at-a-Glance cards. The Rider-at-a-Glance cards, which are made available to both instructors and class volunteers, are generated with input from family members, therapists, and CKRH staff and contain abbreviated, non-confidential information regarding behavior management. Clients are grouped as much as possible into classes of individuals with similar therapeutic goals. Each lesson plan details specific outcome objectives for the entire class; warm-up exercises; procedures, activities and exercises; and an evaluation for that individual client. Records such as these provided validity and reliability to the study design through data source triangulation, or the use of multiple sources of information, which allowed the researcher an additional method of identifying consistencies within the data collected and contributed to the researcher's overall understanding of the data.

Analysis plan.

Handling of data.

Strict confidentiality was maintained concerning subjects and related data through assignment of fictitious names in all transcribed records. Audio recordings from interviews were held in a locked enclosure and destroyed after they were transcribed. All review of CKRH client files was done under the supervision of a CKRH staff member on the premises of the facility following completion of the focus groups and personal

interviews. Only the records specified on the parental consent forms were made available to the investigator.

Thematic analysis of focus groups and interviews.

All data created from the focus groups and the semi-structured interviews were transcribed verbatim as they were collected. Quotations within the text were initially color-coded to denote the relationship to the three major categories described in the research questions involving physical (blue), psychological (yellow), and social benefits (green). Further examination of the data within each general thematic category resulted in the notation of many sub-categories for which quotations were labeled. As data collection continued, the process of analysis, comparison and recoding generated the combination of several sub-categories and the addition of two major areas, cognitive and family benefits, to the three initial *a priori* themes. Spreadsheets were created for each major category and related sub-categories. Transcript page numbers for appropriate quotations were recorded within each classification to aid in interpretation of the respondents' comments. Representative quotes that best illustrated and supported the constructs in each thematic classification were then selected for inclusion in the written results. Rough counts of subjects offering supportive data for each thematic sub-category were recorded. Whenever possible, the number of similar responses was noted in the results section to help identify the prevalence of major concepts presented by the data.

CKRH client records.

Extensive notations were made during review of each client's personal files.

These data were utilized to create the participant profiles contained in Appendix E and served as a resource to support and compare data collected during focus groups and personal interviews.

Summary

This chapter described the methodology of the current study, including the method of recruitment and the demographics of the subjects, the design and procedure, and the method of handling and analyzing the collected data. The research design utilized multiple methods including focus groups for both therapeutic riding program instructors and class volunteers, semi-structured interviews with staff members and parents or other family members of the program's clients diagnosed with autism spectrum disorders, and review of CKRH client records. The next chapter will report in-depth results of the study regarding the perceived cognitive, physical, social, psychological, and family benefits of the therapeutic riding program for clients with ASD.

Chapter Four

Results

The purpose of this study was to examine the perceived cognitive, physical, social, and psychological benefits of a therapeutic riding program intervention for children with autism spectrum disorders (ASD). The qualitative design provided the researcher with a greater understanding of the particular experiences of the intervention that could potentially help maximize the physical, emotional, and social health of this population, rather than what could be captured with standardized instruments. This chapter first presents a brief description of the participant demographics, followed by the results of the study including the addition of perceived family benefits, which developed as an emergent theme during data collection. The sections on cognitive, physical, social, and psychological benefits are each preceded by a discussion of normative childhood development for that specific area versus the classic limitations of autism spectrum disorders, based on the researcher's assumption that appropriate interventions for individuals affected by ASD should work toward achievement of similar objectives in growth and maturation in the quest for optimal function and wellness. This discussion of developmental constructs also provided a framework for organization of the relevant themes presented by the data.

Participants

Three focus groups and two personal interviews were conducted for riding instructors, class volunteers and staff members of the therapeutic riding program at Central Kentucky Riding for Hope (CKRH), located at the Kentucky Horse Park in Lexington, Kentucky. Five riding instructors (one male and four females) took part in the

first focus group. One male and two female volunteers participated in the second focus group, and one male and one female took part in the third focus group. All three focus group discussions lasted between 60-90 minutes. Semi-structured interviews were held with the female Executive Director (45 minutes) and the female Program Director of CKRH (60 minutes). Personal interviews were also conducted until saturation was reached with 22 parents or related caregivers (16 female and six male) of 15 children diagnosed with autism spectrum disorders who were enrolled in classes at Central Kentucky Riding for Hope in the 8-week fall session of 2008. These interviews were held during the children's lessons at CKRH and varied in length from 30-60 minutes. The two female and 13 male children enrolled in the therapeutic riding program ranged in age from four to 23 years, with a median age of nine years. Records such as client registration forms containing medical information, initial client evaluation forms, and instructor lesson plans and evaluations provided information for participant profiles, demographics, and data analysis.

Results

Cognitive benefits.

The American Heritage Stedman's Medical Dictionary (2002) defines *cognition* as "the mental process of knowing, which includes perceiving, recognizing, conceiving, judging, reasoning, and imagining." Cognitive abilities include comprehending and retaining information, following directions, decision making and problem solving, and appropriate use of language (Edelman & Mandle, 2002). Optimum cognitive development is dependent on several factors (Murray et al, 2009), including native intelligence, degree of maturation, motor stimulation, adequate nutrition, and sensory

stimulation through social interaction and other activities. The level of independent function attainable for any individual is greatly dependent on his or her capacity to think, perceive and deal effectively with the challenges of life (Murray et al, 2009), which can eventually include behavior and lifestyle choices that affect long term health.

One of the most well known theorists of cognitive development, Jean Piaget, described four main stages of predictable levels of thought processing that evolve as a consequence of natural maturation of sensory, physical, and neuromuscular activities coupled with a child's active interaction and experimentation with various stimuli in his environment, through which he learns to readjust his thinking and solve problems (Berk, 2004; Edelman & Mandle, 2002; Murray et al, 2009). During the *sensorimotor stage* (birth to 2 years) the child explores the world through his eyes, ears, hands, and mouth; solving basic problems first with physical trial and error experimentation, then to a greater degree with mental processing. The beginning of a child's symbolic thinking is expressed through language development and make-believe play during the *preoperational stage* (2-7 years), while logical reasoning and organizational abilities emerge throughout the *concrete operational stage* (7-11 years). By the *formal operational stage* (11 years and over), the child is capable of abstract thinking and consideration of many possible outcomes to problems rather than only the most obvious choices. Piaget's theory stresses contact with age and stage-appropriate environments that will encourage active learning through the discovery process.

Later proponents of the information processing theory of cognitive development concur with Piaget's basic assumptions, but consider experimental learning to be a more continuous process that is present to a greater or lesser degree throughout childhood and

not rigidly relegated to specific age ranges. Both theories, however, emphasize discovery learning through direct contact with the environment (Berk, 2004). The amount of sensory stimulation provided as well as the individual's perceptual capability will greatly affect the functional cognitive level each child can achieve. In general, children require individual attention and encouragement to participate in a variety of tasks and activities that can provide opportunities to learn more about people and the world around them (Murray et al, 2009).

Although some children with autism spectrum disorders (ASD) may possess exceptional cognitive skills in one or more rather narrow areas of functioning such as mathematical calculation, rote memory, or musical ability (Sadock & Sadock, 2003), the condition is more typically marked by deficits in intellectual functioning and uneven development of cognitive skills. Approximately 75% may be categorized as mentally retarded (American Psychiatric Association, 2000). One third to one half of this segment will be categorized in the mild to moderate level, with the balance in the severe to profound range (American Psychiatric Association, 2000; Sadock & Sadock, 2003), although children diagnosed with Asperger's syndrome do not typically experience delays in cognitive or language development (American Psychiatric Association, 2000). Individuals may alternately exhibit either hyper or hyposensitivity to sensory stimuli. Many seem to enjoy or require vestibular stimulation such as bouncing movements, spinning, and swinging, and typically display a short attention span and poor ability to focus on a task (Sadock & Sadock, 2003).

Difficulty with language processing and usage is a principal criterion for diagnosis of autism spectrum disorders (Sadock & Sadock, 2003). Both language delay

and language deviance may be exhibited, and it is common for individuals to experience more difficulty in receptive than expressive language (Sadock & Sadock, 2003; American Psychiatric Association, 2000). Children with ASD may initially demonstrate some normal language development but regress later on (American Psychiatric Association, 2000). Individuals who are verbal commonly exhibit abnormal patterns of speech, including stereotypical, repetitive or nonsensical vocabulary and unusual pitch, rhythm, and intonation. Even if an individual possesses a relatively large vocabulary, it may be hard for him to create meaningful sentence structure and difficult to understand questions, directions, or context in the speech of others, thus dramatically limiting his communication capabilities. Some children demonstrate unusually high levels of reading skill, or hyperlexia, at an early age but have little comprehension of the material.

Much emphasis is placed on therapies designed to augment language abilities for children with ASD, as both intellectual level and proficiency in communication skills are critical factors for long term prognosis (American Psychiatric Association, 2000). These recommendations, as well as those for general cognitive development, lend support to any type of intervention that provides appropriate sensory stimulation and opportunities to actively explore and interact in a supportive environment.

Increased processing opportunities.

Since CKRH client applications require input from both the child's physician and parents or legal guardians, lesson plans can be designed to provide activities that will complement the unique needs and concurrent therapies of enrolled individuals. Parents of 14 of the 15 children noted opportunities for improvement in one or more areas of their children's overall cognitive function. Dave's mother reported "...that's always good for

anybody to have to think about what to do, so I think that's good for him to have to process...what he needs to do to control the horse." Doug's mother values the parallels between therapeutic riding exercises and her son's other interventions:

...the instructors come up with particular activities that also work on...cognitive skills and language skills, so this program is so terrific because it gives him an opportunity to try to apply some things that he's working on very specifically in speech and in OT and in PT and it just kind of pulls that all together. And provides that sensory input...

Many activities planned by the instructors during therapeutic riding classes are designed to provide opportunities for increased cognitive processing. While learning to balance and control the horse is considered an important goal, riders are also asked to perform a variety of other tasks while mounted, as described by Deb during the instructor focus group:

...when you ride, you are doing like 10 things at once, and you're having direction come at you, so not only are they sitting up, holding reins, then you have to pick up the ring and ride to the next barrel and put the ring on the cone and then pick up your reins and...you've got *all* this stuff coming in at once... And it's a lot of stuff. Like I remember when my mom took lessons, and she couldn't believe it – she's like, "You gotta keep your heels down, and hold your reins, and do all this stuff at once?" and I'm like, "Yeah!"

From her perspective as a volunteer in one of Deb's classes, Shirley bears witness to the cognitive challenges each rider is required to undertake:

...what Deb's really...been working on, "O.K., today you have to look where you're going...if you're going to go to that end of the ring, you have to look..." and so she's done a lot of little things like that that the goal...was to ride with reins in one hand and open the mailbox...to make them try to figure out how to do something like that. And I think that—it would be something that should carry through...

Instructors and class volunteers often readily note improvement over time in each rider's ability to complete similar activities which are typically repeated in subsequent lessons.

Deb reports on the progress of one student in the study during the instructor focus group:

And...once we do like an obstacle – let's say we're taking a beanbag from the bucket and putting it in the mailbox – he knows that once we stop and put it in the mailbox, he knows to say "Walk on!" That's the next step, and he doesn't need us to say, "O.K., now you say 'Walk on.'" He knows that that's the next step in the course.

Volunteer Sherry can also appreciate the combination of physical and mental processing required to complete class activities, as she discusses during the first volunteer focus group:

I think the repetition is good for a lot of the students because...like taking the rings down to put in the cones, because it's a memory kind of thing—a retention...and it's also physical, it's reaching over and doing this and it's a color match and it's like a lot of things going on, but I think the knowing what you're expected to do...to hold that in your mind and be able to do it, it's been really good for some of the guys I work with.

Instructors can utilize a child's known strengths to elicit performance in activities that target weaker areas. For example, Bob's mother notes that instructors, realizing that reading is one of his strong points, often ask her son to read successive clues on cards previously hidden around the riding ring in order to complete a treasure hunt activity on horseback, which involves the cognitive ability to consistently focus while completing a series of instructions.

Sensory input.

Cognitive development theorists observe that normal cognitive processing in the growing child is dependent upon the development of motor activity, which then leads to social interaction capabilities. Proper maturation of the nervous and endocrine systems allows the acquisition of physical skills (Murray et al, 2009). In preschool age children, the ability to learn is greatly affected by sensory function and the stimulation of the visual, aural, and tactile and kinesthetic sensations through various activities.

The therapeutic riding program is often chosen by parents because it provides an environment with a variety of sensory opportunities that may prove useful for clients with ASD with reported sensory issues. Nine caregivers reported a desire for improvement in this area, including Gary's mother, "...I just...expected him to be able to experience a new environment, maybe some different sights and sounds and smells and things that he wasn't used to. To get used to being around some new people and some different sensations..." Doug's mother reports, "...he still requires a lot of sensory input and that's why this program is so good for him... It is definitely helping him and...giving him some wonderful sensory input which you just can't duplicate in any other form."

Bob's mother agrees, "I think it's the sensory...input he gets, both from the pressure of bouncing on that horse to just the different textures of the horse. The whole nine yards."

The range of individual sensitivity to sensory stimuli can vary widely among individuals with ASD. It is common for many of these individuals to easily become overstimulated, which often leads to behavioral meltdowns, while others may exhibit abnormally high pain thresholds that can put them at risk for injury. Strategies for introducing sensory stimuli to clients are, therefore, of necessity designed to meet their individual needs. Jan's instructor, Mary, describes the early reactions of her client:

When she started, she could not come in the end of the barn...she was terrified of animals, any type of animal. The sounds, the whinnying and...the activity of the barn, she wanted no part of that; that just overloaded her...so we started very slowly.

Program Director Denise had a similar experience with John during his initial intake evaluation and assessment, and therefore adjusted her approach accordingly:

...he came in on his first days with a high level of fear...really...over sensitized by the smells, the environment, the animal itself, the touch...really overstimulated...and we had to work through some of those [issues]...we began first trying to introduce him to...an average size horse, and start with assessing him at a mounted activity. And that was apparent that he was not prepared for that. He needed preparation, planning and introduction to be able to accept this environment for all of the sensory [stimuli]...so we brought in a mini [miniature horse].

Physical contact with the children themselves can present difficulties for instructors and class volunteers who often find, as volunteer Shirley describes, “some of them don’t like to be just barely touched...if you’re going to have contact, [you have to learn] how to hold them.”

The riding helmets that are required at all times while clients work around the CKRH horses provide some of the biggest sensory challenges to staff and volunteers working with participants with ASD, as illustrated by Program Director Denise:

...a helmet is a difficult thing. That’s...addressing a lot of sensory issues. It can affect the hearing, not that it’s over their ears but it can affect [them]...it’s definitely a tactile touch thing. It’s a space thing...my body awareness is a lot different with a helmet on than off. I mean it’s a balance [thing], it’s all so many, tons of things.

Instructor Mary recounts Jan’s initial struggles with the helmet requirement:

...she wouldn’t even put a helmet on her head. That was another thing...that pressure on her head, and I sent two helmets home with her and said, “Here you go. Practice – wear it when you’re watching TV. Wear it when you’re riding in the car.” Wear it...try and see if she’ll even carry it, so then she got to carrying it, so she shows up for the next lesson and she already has it on! Gets out of the car and she already has it on.

Helmet compliance is readily recognized by parents as a benchmark sensory accomplishment in their child’s therapeutic riding experience, as Jan’s father asserts, “Now she wears the helmet every time she walks in the barn.” John’s aunt’s fears that

his early refusal to wear the helmet would preclude his participation were eventually assuaged:

...they said that he could not ride without the helmet and he has a sensory issue.

And he would not even let us put the helmet on his head. And then when we did put it on, he would kind of cry...and fight us a little bit. But now he's got to the point where he just holds so still and lets me put it on and...he's great with that.

Other tactile challenges include the different textures presented by the horses, the grooming equipment, the tack, and various props used during the riding lesson activities. As Deb describes during the instructor focus group, "I mean it depends on the student, but a lot of times with...children with autism...they have problems with different textures." Sherry notes in the first volunteer focus group that having some of the clients groom their own horses, "has really helped. I see some of them that are initially...that the feel of the brush is very foreign, it was not pleasant." The gradual introduction provided by the staff and volunteers to the tactile challenges of the barn and riding ring are generally rewarded with client compliance and an acquired desensitization that can be applied to other aspects of their lives, as related by John's aunt:

Yeah...he loves to watch Socie now. He'll watch her and he'll...like...watching her mouth...and...he won't touch her face or anything...but he will touch her neck...I think eventually he will. And...they started out by letting him kind of touch her tail...Just...touch...And then he moved up to the mane...you know he loves to play with hair so that was a positive thing...there. And so two or three years ago, before we started, he wouldn't touch any animal. And a dog could walk right by him, he wouldn't pay any attention. He would rather look at a tree

than an animal, and most kids want to look at the animal. And so now when he looks at that cat or dog and he even laughs at them sometimes, he even ran over and touched the tail of a cat, I mean when I see that I know it's from Socie. It's from his involvement with an animal.

Motor planning.

Staff, instructors, and volunteers noted improvements in motor planning skills of clients as reflected in both non-mounted and mounted exercises. During the instructor focus group, Mary described Jan's improvements in cognitive processing as related to successful motor operations during preparation for class:

And...now we do our sequence of events, in order, and she knows this; the order we do 'em in. She will come and get her grooming box; she knows what color it is. She can get it off the shelf; she carries it back; she picks out her grooming tool...she grooms her mini...then she leads her.

Four parents reported increased skills in this area, including Rick's father:

...especially within the last year and a half, two years, motor planning issues [have improved]. The...steering, left and right. Understanding that, doing the whoas [stops], actually learning to control the horse. So [increased] confidence level from that...he understands left, right, and now they're even moving beyond that to more generalize instead of going, "Turn left Rick," or..."Turn right." It's..."Go to the mailbox," so it's moved from a very definitive to a more abstract, so...that's just a continuation of it so it's great.

Robin's mother reports similar observations:

And then...we started seeing that...he was doing these activities like the ring toss and bean bag toss and I thought, "Gosh, his eye-hand coordination is probably really improving out there." And...then we started noticing that he was learning how his movements and his posture was affecting the horse and the horse's movement and posture. And then he was learning how to control them both. So he realized, "If I control my hands, I'm going to control where this horse moves. Or even my posture will affect how the horse moves." So I thought, "Oh my gosh, his motor planning is probably improving with all this" because he had very poor motor planning. So...and then we started noticing that he was anticipating changes in speed and direction. Again, that was enhancing his motor planning. ...And even going around corners and curves, and he was really having to anticipate..., "How am I going to do this? How am I going to get this horse to turn to the left when I want him to turn left and to slow down so I don't fall off?" So that, oh my gosh, look what's happening here.

Proprioception.

Awareness of one's body in space is crucial for the balance and coordination required to perform motor activities, as well as to prevent injury when working with large animals, as Executive Director Pat explains:

That spatial awareness...comes into play with that too. I mean, you get too close to a horse and in somebody's space you might get your foot stepped on or your might get...knocked by the head or something, coming close to you. So I think people learn a lot about spatial awareness and what's appropriate.

Program Director Denise describes the interaction of proprioception and motor planning during a riding lesson, "...so as we're working on heels down in the saddle... proper positioning,...equitation ...it's part of that motor planning. It's a part of identifying...where our body is. Our body awareness and those type things." Three parents referred to challenges in this area. Kerry's mother sees improvement in her 6 year-old's proprioceptive deficits:

... riding has just really made him maybe become a little bit more aware of those things. Definitely his physical and his body. Like where his body is in space. He used to just...run into things all the time. And...then he...would run into someone and look at them like..., "Why did you run into me?"

Older clients also profit from the challenges provided by horseback riding, as described by Jim's mother:

Part of that has to do, of course, with dealing with the physical aspects of his disability, the vestibular stuff and not being sure where his body is in space and all of that, of course this works on all of that. And not having to concentrate on keeping his body upright and wondering where it...where things are coming at him from.

Focus.

Whether described as attention span, listening, or focus, family members of seven of the children considered increased concentration an important benefit developed on horseback. Wayne's mother reports, "...he's doing so much better with...listening to directions is another big thing because he always has had a really hard time with that. So to see him listening to directions on a consistent basis is really nice." Both of Gary's

grandparents and his mother considered this to be one of the most important effects of the program and mentioned it multiple times. Gary's grandmother says, "...I think, for whatever reason when he's on the horse he concentrates better...the thing to me that's...the most beneficial is that it causes him to focus...to train his mind to focus because that was a big problem." His grandfather remarks, "I think he's absorbed by it. He never...asks to get off. He never says, 'I've had enough'...he goes right down to the wire, till they finish with him, yes."

The following description by Gary's grandmother illustrates the classic difficulty of interacting with children with ASD and summarizes the observed positive effect of therapeutic riding for children who exhibit this symptom:

So...a lot of times when you talked to him it's like it didn't register...like...it didn't reach him. He's either far off or it just didn't make sense to him, I don't know. So once he started with the hippotherapy, when he was on the horse, from what I was told, he would focus the whole time that he was on the horse. So I think it carried over, or else maturation, but I have to think that that helped because then he was concentrating and gradually got better, where most of the time he'll hear you.

Following directions.

Following multi-step directions is a commonly-stated lesson goal for clients with ASD, as deficits in receptive language skills can cause difficulty in interpreting verbal instructions. Increased attention span and focus helps the riders understand and complete tasks required of them during their riding lessons. Caregivers of six of the children reported improvements in following directions. Family members such as Gary's mother

frequently report a greater willingness to do so while mounted on a horse, “I think...he learns to follow directions a little better when he’s on the horse. He may be more likely to pay attention better. To focus his attention better...follow what people are telling him or asking him.” Gary’s grandmother, who attends most of his lessons, adds, “Well...generally when he’s on the horse, if they say lift your arm, he’ll lift his arm. Whatever they tell him when he’s on the horse, he seems to do.” Jerry’s mother has seen a change over time in her son’s performance, “...well I’d say that he definitely follows more direction now.” Wayne’s mother observes:

...just learning to follow directions was a big thing...because he...just didn’t have that skill. ...He does very well and...a lot of times they’ll do...like a little game where they have to...take an item and move it to another place and...they give them the directions and say, “O.K., this is what you have to do.” And sometimes he has to be prompted again, sometimes he doesn’t. It seems like it’s getting better than it ever used to be because he used to have to have each direction...single directions before he could do it, and now you can give him a few directions and most of the time he’ll be able to do it...

Instructors and volunteers are cautioned to keep instructions to riders as clear and brief as possible, without a lot of unnecessary verbiage, as described by volunteer Alex, “I know...with Dave I just kind of keep the instruction shorter, what you tell them, and then usually he repeats it back.” Shirley, who volunteers in the same class as Alex, notes the observed progress with that client, “...he wouldn’t do that when he first started riding. We’d say it to him and he wouldn’t repeat—so that’s where you don’t know if he’s getting it or not.”

Mounted games and exercises that the riders typically enjoy are regularly included in lesson plans designed to give as much repetition as possible to following directions, gradually increasing the number of steps involved per verbal instruction, as Wayne's mother explains, "...and that's what they basically play is *Red Light Green Light*. And he just loves that. And it's neat because then he has to watch and pay attention and follow the directions." Meghan's mother also connects the riding lesson experience to this area of cognitive processing:

...and Marsha has been very good with helping her to follow directions, which is also an issue... It's difficult [for Meghan] to follow directions. But it seems that because she's so interested and she's so on task, and she's on the horse and she's got the whole nervous system involved, so that when those directions are given to her, it seems that she is more able to process that.

Problem solving.

A higher level of cognitive development includes the ability to solve problems. Instructor Denise was pleasantly surprised to see the progress made by Jerry in this regard, especially following her initial reluctance to comply with his parents' desire to move their son to Alan's class. Denise didn't feel Jerry was capable of handling the increased demands in a class where the clients ride more independently with fewer volunteers to assist them. Eventually allowing him to participate in the class, however, resulted in Jerry appearing to overcome some of his negative behaviors while rising to the greater challenges of that environment:

...the first year I was here the parents wanted him to be in Alan's class... So...I came to Alan and said, "They're just insistent they're going to quit riding if I do

not sign him up in your class this session. I'm not really sure that this child is ready for this class, but 'Go with it!'" And...what the parents saw that I actually did not see was a lot of abilities and a lot of independent thinking that was behind some inappropriate....social behaviors that are still there – loud voice, inappropriate talk, inappropriate chatter, some inappropriate body movements in terms of gross motor skills. All of those I think are decreased over the past three years...but what Alan has been able to bring out in his class, I think, is an ability that this child did have to...control his horse and to think and to problem solve. I think that's what I was not seeing. I didn't see him problem-solving.

Language development.

Restricted language and communication skills are hallmark symptoms of ASD, and it is common to hear reports of increased client verbalization from those associated with the CKRH program. While discussing improved communication abilities, Executive Director Pat depicts two separate incidents:

A lot of times it's the speech...you say your first word. That happened here this year. First word ever from a nine or a ten year-old, was the horse's name...And then...in the fall...the same horse. One child put their first sentence together and...strung words together for the first time instead of just repeating a word. They actually strung a sentence and the sentence was "I love you Annie," which was the horse.

Meghan's mother feels the riding program has served as a catalyst in encouraging language development for her daughter:

Meghan has severe deceptive expressive language disorder. She was not verbal in terms of meaningful communication at all when she started on the horse. But I think that I feel that she has increased her ability to express herself. If she talks about the horse, sharing information, which is something that's very difficult for her to do.

John's aunt lists this as one of the two most important benefits her nephew has received from the program, "And...plus just...the increase in his vocabulary...that to me was a big plus because we thought he would never talk." Participants with ASD are routinely required to respond verbally in order to complete exercises and games in class, as further described by John's aunt:

And they had these big letters out there now [on the fence surrounding the ring], like A through K and I don't know how far it goes up...they have a little one that matches each letter. And they get them to say... "Look John, this is a K. Say K." And then he'll say, "K." And they stop Socie while they do that and then after he says it and he throws the letter down, then they go. ...And so they're working on that, and they do counting also...they'll say, "O.K., one," and he'll say "Two, three,"...and he'll go up to 10. They've got him doing that. And they'll say, "Ready, set," and he'll say, "Go." Or, "1, 2, 3," and he'll say, "Go."

Effect of horse's movement and deep pressure.

Two closely related sensory concepts related to the riding program are repeatedly credited by interviewees with creating positive effects across all perceived health benefit areas are the deep pressure stimulation provided to the rider while mounted on a horse and the motion of the horse itself. Such impressions were first mentioned during the

instructor focus group and proved to be a recurring theme. Wayne's father, a pediatrician, was the first parent to describe the overall benefits of *deep pressure* and the large base of support the horse provides, plus the elliptical movement of the horse's stride. He feels this may have a neurologic effect that can transfer to behavior change. He remarked that Wayne just *chills* up on the horse, even after having the worst day, and also enjoys bouncing at the trot. When asked to what she would attribute John's progress, his aunt immediately replies:

...I feel that it is totally the motion of the horse....The motion and the warmth of the horse's body against his, because he wants to feel...his sense of smell is strong and his touch is very strong. And he loves to just kind of massage Socie's neck.

Although Rick initially had problems with deep pressure sensitivity, his father describes a positive effect of deep pressure provided by horseback riding on his son's sensory integration:

All he wants to do is ride. And he doesn't care, but he does like the...horses that are going to move and bounce...because he likes that deep impact...I think it goes back to...his proprioceptive...needs...his sensory integration needs...because...to ride on the horse, especially at the faster paces, you're going up and down and you're bounding and you're getting deep pressure all up and down through the trunk, as...the gravity's hitting so...from sensory integration...that's great. So he likes deep pressure to this day. I mean, he likes swimming because that's a fully body...you're completely surrounded by...pressure, liquid.

Children with ASD often display stereotyped movements and behaviors that may fulfill a need for sensory stimulation, as described by Meghan's grandmother, "...she needed that stimulation and...there's times when she rubs her eyelashes and it gives her a sensation. But this way she's getting her whole body into it...She's even pulled all her eyelashes out at times..." Many interview subjects observed that the pressure and movement provided by the horse may fulfill this innate sensory need and thus allow more normal cognitive processing. Meghan's mother expresses her belief in this concept:

How that's supposed to...increase learning and awareness. And I think a lot of that is going on when she's on the horse...just naturally, because of the movement. So I think it does increase her...ability to understand and listen and...process that information.

John's aunt feels the motion and pressure are responsible for nephew's improvement in language deficits:

...the jogging like they did just now...he loves that. ...and ...that makes me believe that the motion of the horse is what's giving him the stimulation that he needs. And that's why I say that I think this is what's helped him and his in home speech therapist...told me one day that he felt that his progress thus far has been because of the horse therapy...So it's not only me...it's from other therapists...

Instructors also feel strongly about the crucial link of equine movement to student progress, as Deb remarks, "...when we're talking about students with sensory integration problems, the motion of the horse is *so* huge...to this...and that's what really helps them focus, and helps keep them involved." In describing Robin, Denise remarks, "He developed trust for the animal, and then we went to the mounted activities and started

obtaining the benefits from the movement and things like that.” Denise employs the motion of the horse as a foundation for tactile exploration exercises for students who are hypersensitive to touch:

...and I think also the tactile – the touch...we improve individuals’ acceptance of a variety of touches and a variety of feels. The horse hair is something very different from even a dog or a cat...and so when you have that movement of the horse, the individual with the diagnosis of autism doesn’t have to touch the horse first...oftentimes I’ve covered the pad [that the rider sits on] with something that’s familiar with them...So in terms of the movement and going back to the tactile and the touch, the individual doesn’t have to touch. They do not have to accept the feel of the horse itself. And then you get on, and you’re getting the benefits of the movement and so then they’re calmed, they’re relaxed, they’re more organized and they’re more accepting of the touch. So then you start branching into the touch of the horse, then you start branching into the touch of different objects. So you start addressing the touch but it’s after the movement has occurred.

Physical benefits.

As mentioned earlier in the chapter, a dynamic relationship exists between normal cognitive and physical development in preschool-age children. Brain development allows for improvements in coordination, perception, attention, and memory, all of which are required for acquisition of motor skills. Motor development, in turn, stimulates maturation of cognitive skills (Berk, 2004). As the toddler’s center of gravity moves toward the center of the body during head-to-toe growth, improved balance and strength

lead to gains in gross motor skills such as sitting, walking, running, and jumping, all of which involve coordinated efforts of the limbs and large muscle groups. As the child becomes more proficient in gross motor activity, the torso is then freed to permit actions such as throwing, catching, or steering a bike. Greater proficiency in both upper and lower body gross motor skills supports the development of the smaller muscle groups that perform fine motor skills such as grasping an object between the thumb and forefinger. Opportunities for physical activity encourage normal physical development in children, who typically acquire these necessary building-block skills through the activities of play.

Although physical deficits are not classic symptoms for children with ASD, many do exhibit problems with coordination, balance, and strength that can restrict normal development of both gross and motor skills. A causative factor for such limitations may be the typical social withdrawal feature of ASD that results in a lack of interest in interactive play with other children and reluctance to participate in physical activity or sports as the child grows older. Horseback riding is a sporting activity that requires physical exertion and proper conditioning to perform safely and effectively. Therapeutic riding encourages improvements in muscle and core strength, coordination, balance, flexibility and proprioception as the rider is required to mount, dismount, and maintain balance over his or her mount while maneuvering the horse around the riding ring using hand and leg aids to make the animal turn, stop, start, and change speeds. Aided by the horse's leader and the sidewalkers, the rider may also be asked to perform stretching exercises, ride with eyes closed to concentrate on balance, change positions in the seat, or throw and catch objects at a variety of angles. At least six of the children in this study have received or still participate in occupational and/or physical therapy, yet the

therapeutic riding program is routinely credited with greater enhancement in physical development.

Opportunity for physical activity.

Barb described the lack of physical activity options for clients with ASD during the instructor focus group, with agreement from the group as to the exercise potential of this activity:

Well, they're never gonna exercise. I mean, I don't know for a fact, but I'm guessing most of these participants don't play soccer, or softball... They don't swim, and they don't do all these other things that other students do, so they don't get a lot of exercise. And as we all know, this is really good exercise! Everything gets worked, so... I think it's good physically...

Seven caregivers identified the opportunity for physical activity as a benefit for their children. In speaking to her daughter's lack of regular exercise, Meghan's mother says, "Yeah. To see her doing something physical is always good." Jan's step-mother remarks:

Well I would say that...not only is it...a good activity outside of school, but it is good for her physically...she has to use her muscles...this is so unique...I mean she uses her arms to pull the horse...

Jan's grandmother elaborates on other factors restricting children with ASD from team sports:

This is her thing...I can't think of any sport she could really participate in...for one thing she wouldn't understand a lot of theory. ...and she's been at this five years...now she gets out in the yard and runs and plays a little bit when they're

trying to play ball and stuff. And...she's not going to be picked for a team or anything...

When asked to sum up the therapeutic riding benefits in one word, Jan's father echoes the same sentiment:

She has been so sheltered and unable to do so many things that it's like...her chance at soccer or her chance at...some kind of sport. And she knows that she's doing something new and different and challenging... And I see so many good things...but...just the participation...for her to be learning this skill...and to be participating, right...that's the best I can do in one word. That's hard to do.

Opportunities for physical activity through team sports may grow dimmer as a child with ASD reaches adolescence and restricted social skills exert a stronger influence that can preclude the child's participation, as Dave's mother describes in discussing her expectations for this program:

...I think just an activity that he could...participate in. It seemed like team type sports...he did the challenger t-ball but he was kind of better than that, but not good enough to play regular ball because you know that gets pretty competitive. So this has seemed to be a sport or an activity that he could participate in. ...And it gives him activity. Because he has a tendency to be kind of focused. Well, he's our only child too. So he kind of has a tendency to...play with his own things...play on his computer...he's not really had the social skill.

Gross motor function.

Strength, balance, and coordination, and proprioception are all necessary for proper development of gross motor skills such as walking, running, and climbing,

During the instructor focus group discussion, Denise describes the value of balance and strength development for clients with ASD as well as for those with disabilities presenting with more physical limitations:

We don't necessarily think of...individuals with autism. Core muscle strength is something we automatically think of with individuals with CP...and some other things like that. Core muscle strength affects everything...and I think that's a huge, huge. If an individual is on a horse, - we're improving core muscle strength.

Riding class activities are structured to include exercises which help the client to develop the basic physical skills needed for gross motor function that can be transferred to daily life skills. The necessity of mounting and dismounting from the horse at each lesson is perhaps the first action that provides a muscular challenge for the client. Volunteer Perry notes, "As far as the core...their abilities...as far as mounting and dismounting, I've seen a vast improvement in most of them in that area." Another volunteer in the same class, Jo Ann, has observed changes in the riders' physical ability and eagerness to mount their horse independently following eight weeks of lessons. Instructor Denise describes, "I've seen Alan do a lot of balance exercises, as well as everybody else, and how does that relate to day-to-day life?...walking up steps without holding a rail". Barb adds, "Well, just where they are in space. Where their bodies are is how movement affects – things that we don't even think about." Bob's mother agrees, "...they do lots of balance things....they play basketball, they've put rings on stuff, take rings off of stuff, take stuff in and out of stuff. ...lots of those balance and mobility." Mary describes the therapeutic goals of such exercises, "...we do a lot of rings on cones and poles...and then they have

to right themselves...A lot of eye-hand coordination. And then they have to right themselves, to get back in the middle, you know, pick up their reins..." When asked what procedures, methods or drills he has observed to be most beneficial for the clients he assists, volunteer Perry replies:

I think probably—and this is something I've never done on a horse—is ride backwards...to be able to maneuver around on the horse while it's moving... requires a lot of coordination...that has to be developed over a period of time. But...you can see that from the time that they first started doing that, that they're very apprehensive and tentative, but as time goes on, as weeks go on, they do it...rather quickly actually. And enjoy doing it...like Wayne.

Volunteer Jo Ann agrees with the popularity of this drill for Wayne in particular, "He would spin around like it was his job. Like it was nothing. He would hear the, 'O.K. now,' and he'd be around."

Strength.

The positive results of such therapeutic riding exercises for clients are noted by instructors, volunteers and parents alike. Nine of the children's assessment forms report evidence of low muscle tone, or *hypotonia*, and seven caregivers reported gains in core or general muscular strength. Class volunteers who work in direct proximity to the clients may be the first to appreciate changes in a client's physical skills. Sidewalkers often are required to utilize a *thigh hold*, in which the arm closer to the horse is placed across the rider's thigh for stability. Class volunteer Jo Ann describes improvements noted in muscle strength, "And you can feel it in their muscles, if you are hanging on to them, you

can feel it.” Dave’s mother compares this activity to occupational therapy regarding improvements in muscle tone:

I think the physical activity really helps him. And to me this seems like this is kind of like occupational therapy because I think it does help build his muscle tone where he’s weak and...he’s always had the other skills...He’s been able to do...a lot of physical things like he’s always...been very good with his hands. So we never had really any occupational therapy type needs. But I think this does help strengthen him...

Core strength in particular is extremely beneficial for balance, posture, and movement. When asked about the perceived physical benefits for her son, Kerry’s mother speaks to the noted improvement in the basic skills required for maintaining correct posture while riding:

Physical strength wise...coordination, I think balance. Oh my gosh...you know he has tremendous lower body strength but he had very little trunk strength and especially when he first started. Had very little strength. And...of course we’ve been doing other things and...building, but you can tell...he sits really well in the saddle and he has a beautiful posture, which he doesn’t always have the best posture anywhere else, but in the saddle it’s beautiful.

Volunteer Sherry related the significance of the changes she has witnessed in the clients’ strength to functional life skills:

Well, even like the trunk strength, the core strength that some of them [have gained]...it’s like wow. So you know it’s helping all throughout their life, their everyday life, not just while they’re here...

Jim's mother additionally correlates adequate muscle tone in the trunk region with greater success in the classroom:

Well...when he first came, he had really low muscle tone, so—and he couldn't sit up. I mean, don't misunderstand me. I mean he was always able to sit up and walk and everything, but like in school, he just couldn't sit for long periods of time. He'd flop over and, at home the same thing...he couldn't sit for long periods of time. He'd be wanting to lay down or whatever, because of the poor muscle tone, and it increased his trunk strength. You're better able to hold a pencil, you're better able to do those kinds of tasks at school. And if you're not having to concentrate on keeping your body upright, you can focus more on your learning.

Instructor Denise addresses the interaction of the physical aspect of core strength with the cognitive development of language skills which are so often a limiting issue for children with ASD:

...building core muscle strength is important no matter the diagnosis, but I think how it applies with individuals with autism. Sometimes we don't think about that core muscle strength and how that core muscle strength affects our verbalization, which thus is affecting the communication...and what research has shown us is that when that core strengthens, then so does the ability to verbalize and so the speech increases.

Multiple factors of gross motor skills.

Perry speaks to improvements in multiple bases of motor function, "...it improves their...ability to their flexibility, their coordination...their...hand-eye coordination, I

mean everything is improved...it gives them strength...” Speaking to the value of the *horse as treatment tool* for both physical and spiritual gains, Jo Ann explains:

...mostly I think the reason that they’re on horses when they do hippotherapy and therapeutic riding is it helps them control their bodies. Because you have to be able to control your muscles, or at least try to, in order to stay on a horse, or you will fall off. So I think it’s good for their posture, good for their—I don’t know, it’s good for their soul.

Robin’s mother initially chose therapeutic riding as an intervention for her son’s hypotonia, but has a keen appreciation for the multiple benefits for gross motor skills:

...as I was pointing out to you out there when he got up on the horse, his posture got really really nice. ...He...has low tone and that was his original diagnosis, was just hypotonia. So I knew when he could turn four, that we would get him in Riding for Hope because I knew with this low tone that it would be great to get up on the horse because I thought...this is going to improve his range of motion and his...posture and his balance and...his endurance and strength. So it was all kind of PT goals that I thought...this will be great for it...so as soon as we got on the horse, we noticed his posture improved. So we thought, gosh, this is amazing.

Meghan’s mother notes a regression in her physical skills during the off season from therapeutic riding sessions, “...it did seem that she would take a few steps backwards with regard to her balance and coordination...things like that, in between the riding sessions.” Adequate balance, proprioception, and core strength are required to develop a *good seat* while remaining centered atop a moving animal. Instructor Mary utilizes this measurement in her evaluation of student riding skills:

I always think that's a huge milestone; when my students... can self-adjust while they're moving...if I can say, "Oop, you're a little to the left..." and if they can make that adjustment—if they can put their hands down and if they can take up rein while they're moving, I think that that's a huge milestone for them...Instead of having to come in the middle and stop. They can balance themselves enough, and keep that going, and still manage to take up their rein, or concentrate on getting their heels down ...

Fine motor skills.

Once a child masters the basic skills of motor function, greater control of the muscles of his extremities allows the development of fine motor skills such as grasping objects and handwriting. In addition to class activities involving the handling of objects which may be carried, tossed, or thrown, therapeutic riding also requires the rider to hold the bridle reins and learn how to guide and stop the horse, which can improve fine motor function. Robin's mother was one of five caregivers who observed gains in fine motor skills, as she describes:

And then we started noticing that...he was having to grasp the reins. And his hands are very, very weak. And he still has a very immature hand grasp. He's still—he can just barely do a tripod grasp. And...so I started noticing that his hands are getting stronger...So I thought...eventually this is going to—this is going to promote his handwriting. So I thought gosh, this is great. And then... we started seeing that...he was doing these activities like the ring toss and bean bag toss and I thought, gosh his eye-hand coordination is probably really improving out there.

Activities performed while assisting with horses in the barn following the riding lesson can also provide aid in fine motor skill development. Instructor Deb recollects Rick's progress in his capability to hold the tools in his hands properly and to perform the necessary movements to correctly groom his horse:

...when he gets down he can now lead his horse – help the leader to the back of the barn. He helps untack the horse – take off the saddle – and then he brushes the horse five times on each side. And it's...just very exciting, because before, we'd never get that far.

Instructor Denise describes how this particular skill acquisition can readily be applied to daily functions of life:

When you think about living skills; when you think about individuals dressing themselves independently...he can now unbuckle the buckles on the saddle. That directly relates to the buckle on his belt. The fine motor skills directly correspond to...the putting on his shoes and some other things.

Endurance.

Development of endurance to maintain physical activity at the same level and to resist fatigue is another aspect of physical fitness that may be lacking in children with autism who experience limited physical activity. Therapeutic riding instructors carefully monitor clients for signs of fatigue during lessons, but riding time can typically be increased as physical ability and attention span improve, as Robin's mother attests:

He was doing the ring toss and—which were all good because he needed to be up on the horse balancing and practicing his posture and...just having the endurance because he used to get very, very tired. ...he's always had very low endurance,

but then in the first few classes, he'd make it out there maybe 20 minutes. And now he can go a full hour.

Meghan's grandmother also describes this desirable consequence derived from repeated riding lessons:

So I think this has really helped her...can you imagine to ride that horse for an hour and get off of there. I mean you'd be kind of tired, do you know what I mean? Your legs would be aching and everything if you weren't used to doing that. So I think that has really helped her too.

Toilet training.

It is not uncommon for children with ASD to experience delays in toilet training.

Three parents credited the riding experience with their children's progress in this important area of independent functioning, including Bob's mother:

...Bob is not potty trained. We leave [CKRH] and he will say, 'I need to go potty.' Where did this come from? ...who knows, but...it was just kind of a correlation and the way it happened and all clicked and we're like, "Well!"...we put him off because I was driving and I put him off...like "Let's wait." "No, I need to go now." And we did stop and he did go some. It wasn't a whole lot though, but...Yeah, I mean it's happened a couple of times...

Meghan's grandmother proposes an explanation for this phenomenon:

My daughter really feels that it was a big reason that she was able to be potty trained. ...you know, she's five years old. She was still not potty trained. ... but she's come out here and—I guess the stimulation...of what was happening and it

uses all of her body and the motions and the stimulation...we were able to get her potty trained after that...

Meghan's mother utilized this rationale in designing another stimulus that encouraged her toileting at home, lending credibility to the cause and effect relationship of increased pressure and localized body awareness:

...as far as the physical therapeutic part of it I can't begin to describe the difference there. ...she didn't potty train until she got on the horse...she was five, six, and having a lot of trouble potty training, couldn't stay dry during the day, was going to school and was actually probably in the second grade, still wearing pull-ups to school. And one day she came home from riding and she had just gotten off the horse, actually, and I had taken her home. We live very close. And she gets out of the car and...kind of grabbed herself, and I said, "Meghan, do you want to go to the bathroom?" And she said, "Yes," so I took her straight to the bathroom. Well that happened again after a ride. So at that point we brought a bicycle into the house and let her sit on the bicycle and...we would have her ride around...and then we'd get her off and take her to the bathroom. So it was potty training and I think it was just development of the awareness of the sensation...her pressure sitting on the seat is the only time that she was ever aware of any sensation, and just very quickly after that that she would get off and you could see that she was uncomfortable and that's how we started.

Kerry's mother has often heard this sentiment expressed by parents of children with ASD, and acknowledges the effect of increased muscle tone, localized pressure and improved proprioception:

...My son has the low tone in his body. He has a hard time with using the bathroom. And I can't help to think that this doesn't help because a lot of times...right after, he's like, "Oh I gotta go."...and maybe it's just physically being on the horse...but it's...like a weird thing because...most kids—I've talked to lots of parents and a lot of their children have issues using the bathroom...he got potty trained really easy. I mean once he...decided he wanted to be potty trained, that was it...I mean he didn't make any mistakes or anything, but...I don't think he knows when he has to go...and then when he does, he just holds it in and he doesn't realize, "Oh, wait, do I have to go, or what is this?"...we're working on that. But it's kind of a little side thing that I think has helped. And I've had other parents tell me...one child...was five and she wasn't even potty trained yet. And she started horseback riding and she immediately started saying, "I want to go to the bathroom...I want to go to the bathroom." And she would never even do that before...I think it's simple awareness, because some of them are just so unaware. Like he's just...unaware of his body space in space. And it just—maybe pressure? Or they're like, "Wait a minute." And it makes them think about that area of their body because they don't always...

Decreased "stimming" behaviors.

The apparent need of a child with ASD for higher levels of sensory stimulation is discussed in the cognitive benefits section of this chapter. Two parents and several staff members and instructors reported decreases in the classic repetitive, *stimming* [stimulating] behaviors during therapeutic riding sessions, as described by John's aunt:

He'll do a lot of this [demonstrates "arm flapping" movement]...He'll slap his side or he'll kind of bite his hand sometimes...But I've noticed a lot of that going away, too. And he stays with his arms down. I never would have thought that was possible...He stands there now when they bring Socie [the horse] in. He gets real still and quiet. And so I'm just so encouraged by that...I hope that continues.

Meghan's mother notes an increase in inappropriate motor behaviors when her daughter is not regularly participating in therapeutic riding:

I think when she goes for a period, like for example, they'll finish up about Halloween and they don't get to start back until about April...how can I say it? I don't want to say that she regresses, but in a certain sense, she does. Now I have picked up doing Cardinal Hill therapy more because it seemed that she wasn't doing well between the sessions. She wasn't getting enough activity in. She started toe-walking and doing quite a bit of odd stomping and things like that. Motor activities that she hadn't done before.

The instructors offer a theory that links the motion of the horse to a reduction of stereotypical movements in clients with ASD during the instructor focus group discussion:

Barb: Well, for one thing, I know that they provide movement, that a lot of these...people need, or seek, they get from the horse, so they don't necessarily have to do all those habitual...

Deb: Just like I was talking about the student that jumps up and down...that jumps up and down and flaps. So when I ask him to tell his horse to walk fast, that gives him that...

Margi: Its own repetitive movement.

Deb: Yes.

Barb: So it allows them to kind of be still, in themselves.

Deb: Yeah, they don't have to move to get that sensory – what is that called...

Denise: Input, sensory input?

Deb: Yes, when they're looking for that sensory input, *they* don't have to move; the horse does it for them

Riding skills.

The acquisition of the physical skills needed to become a better rider can reap multiple rewards, as described by seven family members as well as two class volunteers and one instructor. Bob's mother observes the beginnings of the rider/horse relationship, "He tells Socie which direction to go and so I guess they've worked some on how to operate the reins and getting the horse to follow...so he can be in control, I guess." Meghan's grandmother also speaks to the basics of rider control, "...like they'll say, "Now Meghan, you control that horse. Make him stop."...And she's very strong. Very strong. And she will, she'll just pull right back on him..." Gary's grandfather appreciates that Gary is mastering the correct progression of steps involved in the process of mounting the horse:

But I did notice this evening, and it's the first time I've been right up there beside him when he gets on the horse. Normally we're sitting back...10 or 20 yards and we were right up there. And he puts his foot in the stirrup and he grabs the rein. Now he couldn't... swing the other leg over. But...I think he knows some of the procedure. Certainly, I mean he must.

Independent riding is a goal to which many clients and their families aspire. Steve's mother appreciates the opportunities provided from the move to a more advanced level class:

Well...they've taught him...how to guide the horse, of course...and I don't know all the different things that they teach him. But, you know as far as standing up in the stirrups and riding and he gets to ride a lot more independently...in this class than what he did the other.

Because classes are held in outdoor rings, the riding season and even individual class sessions are often interrupted by inclement weather. An irregular riding schedule can cause a regression in learned skills, as illustrated by Kerry's mother:

Yeah, they used to do the summer. They didn't do the summer this year because they said...there was a lot of rain days, a lot of heat days, and so they didn't, which was kind of a bummer. Because...I noticed a huge significance from when he did the whole way through. By the end he was doing like 2-point riding [standing up with only his two feet for support], cantering, you know, trotting.

Robin's mother describes a transition from the original therapeutic goals to attainment of the required skills for this sporting activity:

...they're giving him more responsibilities, they're teaching him more, he's obviously very confident now on the horse, and he's learning more skills. So I think he's actually going to become a rider now, rather than just...before he was doing...mostly I think therapeutic skills.

Jack's class volunteers readily support his mother's observations that her son has moved beyond basic therapeutic activities related to cognitive and social skills and is showing a real talent for maintaining good balance and control while riding his horse:

Sherry: I'm thinking of some little guys that we just... started out with in here and helping them learn to focus a little bit more and...be aware of emotions and facial expressions, this sort of thing. And then they moved on gradually to riding. They all adore it. They love it. And they're very good. One, in fact, just moved into the big ring. He's doing a lot better...I'm thinking of...Jack...I love Jack. What a hoot.

Shirley: He is, he is...[and] he's a good rider.

Sherry: Yeah, he's a little Velcro bottom

Overall physical well-being and transfer of skills gained to daily life.

Ten family members credited participation in the therapeutic riding program with improvement in their children's overall physicality, as reported by Dave's mother, "...I think this helps develop just his physical being. His well-being." Responding to a question about overall perceived benefits, Jerry's mother described:

...physically...you know they do a lot of exercises. Like we see them laying down and having to pull themselves up to get their stomach muscles. And they ride sideways and they ride backwards and...physically, as far as like occupationally, I think it was—it does a lot for him.

Development of motor skills is a crucial step toward the goal of independent functioning for children with ASD. Doug's mother appreciates the positive effect the riding program has on both gross and fine motor function, "So...he's working on some...fine

motor...when he's holding the reins...he's working on...trying to strengthen fingers and...he's working on gross motor just to be able to climb the steps and learn to swing his leg over on a horse." Wayne's mother describes challenges her son has encountered and improvements in which she feels therapeutic riding has played a role:

It's helped his...trunkal [sic] strength has really improved...we've noticed just—now I don't know if it's just because he's getting older and stronger or if it's actually from this, but like last year, he couldn't hardly get on the bus by himself and climb up the stairs, and now all of a sudden this year, he can just about run up the stairs. ...and...at home he will still...hold onto the railing and go up and...not struggle, but you can tell it was...something a little more difficult than it should have been for a 7 year-old,...but he does it really well now and he'll run up and down and it's like nothing ever was different. So...[we've] seen a lot of improvements through a lot of the physical and like I said, I don't know if it's just this or, you know I'm sure it's had something to with it.

Proficiency gained in therapeutic riding may stimulate interest in participation in other physical activity, as illustrated by John's aunt:

...physically I've seen him be a little more active...before he didn't do a lot of running around...And here he actually, he makes like maybe five trips around. You know that's, that's good walking...And so we've seen that. And I take him to a park in Berea and they have like a walking trail behind the school and he actually leads me now...And he used to—he wouldn't even walk like from here to where they are... So, yes, I've seen some...improvement in that area.

Jim's mother credits improved physical conditioning to gains in social skills:

And to be able to actually enjoy the people...yes it's helped the socialization. But I think that's partly just because he's had the chance to socialize and partly because of the improvement in his physical condition...so that he's able to more concentrate on those things.

Although she acknowledges multiple positive outcomes from therapeutic riding, Robin's mother believes success in this program has provided a basis for other functional skill acquisition:

I don't think I could choose one because, yeah...they've really made such a huge impact on his life that everything has just been—one thing can't outweigh the other. The self care thing, that was huge for us. But even just getting over some of the physical things that kind of kept us from doing some of these things initially, like...the fear of being up off the ground and just not having the endurance to complete an activity like that.

Four other parents describe an innate fear of physical activity that had severely limited their child's participation in physical functioning. Both Meghan's mother and grandmother frequently refer to Meghan's difficulties and subsequent improvement in basic coordination. Although her mother does not regularly observe the riding lessons, she appreciates the opportunity provided:

...and she's very hesitant. Meghan never falls because Meghan never moves in such a way to allow herself to fall...and she struggles, bless her little heart, just even getting out of the car is a struggle. She's very slow and deliberate...she just never falls because she's very careful. To see her doing something physical is always good.

Asked if Meghan were initially fearful of riding, her mother continued, "...getting on and off. Not while she's on. But that movement from sitting there to the ground just was a big fright. You know, it was very frightening at first." Meghan's grandmother echoes this theme:

She's very hesitant and cautious...physically it's made a difference, because she was very awkward...clumsy...very cautious in her walking and everything. Of course, she does this and I think that uses all the muscles, they say, in the whole body, which...she needed that stimulation and that kind of—yeah, she needs all that.

Bob's mother has witnessed her son's progress in overcoming a fear of heights that she feels is directly related to the necessity of climbing the steps of the mounting block at the beginning of his riding lesson:

...it does help with his balance. It does help with those coordinations, those fears...he has a fear of heights and I think some of it's the depth perception and things like that...it was that he could not walk up the steps and get on the horse that way. Somebody had to lift him up, well, apparently now he's looked at steps and climbing up the horse that way. So it's worked. We see it just in the different stuff he'll do at home. He'll climb things a little bit higher and I don't know if that's a good thing or a bad thing! Depends on what he's climbing on...and he's a little more—he's not as reluctant to be at those heights, as he used to be.

Rick's mother relates an example of transference of skills learned in therapeutic riding to her son's previously-disappointing trips to a local fast food play land:

When Rick was younger...up until he was, I guess probably three and a half, Rick could not go any further than the first step at McDonalds Play Land. You know how there's just a little porch and it goes up into the big thing. O.K., Rick could never go past that porch. He just couldn't...he would just go up and down that step and everybody else would be up playing and he would look lost. And...he had finished...his first full session...the six weeks or eight weeks...of horseback riding, and...I think he was getting ready to start the second one...[We] all went to the Burger King...We walked into the gate, gate closed behind us,... I turned around and I didn't see Rick. And I am freaking out because it's Richmond Road, O.K.? And so [her friend] hollered up that little tunnel and she says, "Hey, is Rick up there with you?" And...[the other kids] said, in unison, "Yeah!" And I hollered up and said, "Is he alright?" They were like, "Yeah, he's alright." And you hear Rick kind of giggle. And he has never, never been able to climb up in there. From that point on, he could...and it was only after he had finished his first full horseback riding session...that was the first time and he just started being able to do more physical things. But before that, he was just stuck. I mean, it was just very sad to see your little boy just go up one step and sit down, and that's all he could do.

Robin's mother describes similar improvement from her son's initial riding lesson experience, which speaks to the importance of motivation to conquer these physical fears:

It's just been amazing. He...believe it or not had some gravitational issues. That is where they are afraid to get up off the ground, so he didn't want to get on swings, he didn't want to go down slides, he didn't want to climb up ladders.

And so I had initially thought this is going to be a huge issue with him...But somehow he really just wanted to do it...The very first week...he was...clawing on Denise, screaming, “No! Help!” And I was standing there. Yeah. I didn’t think she was going to get him up there. So I thought, “How is she going to get him to do this?” because his PT could barely even get him to go up a ladder to get on a slide. And that took...weeks and weeks to get him to do in a gym. And then, somehow Denise finally...said, “If you just trust me and you walk away I’m going to be able to get him up on this horse.” And she did. And once she did, once she did it was smooth sailing after that. He just got on and rode and, and like I said the second pass around the gate I heard him say, “Walk on.” ...Mikey was his first horse because I remember him saying, “Walk on, Mikey, walk on.”...And after the...first couple weeks he still was a little afraid to get up, but after he got going, it was O.K....I almost...don’t even notice it really anymore...he now just goes on climbing structures and slides and I’m sure this has a lot to do with it because there was a time where...he wouldn’t even go down a slide. And so now...you know it seems to be resolved. And that was one of our biggest issues with...his sensory issues were that he was so afraid to be up off the ground.

Although improvement in gross motor function might eventually occur in lieu of targeted interventions in children with ASD, the typical reluctance of these children to participate in normal play and physical activity invites an emphasis on appropriate organized physical activities for this population. Even though many children in this study receive physical and/or occupational therapies in addition to therapeutic riding, parents

such as Kerry's mother commonly referenced the enhanced motivation to participate and resultant compliance that is provided by this program:

...you know he had problems with his balance and crossing things...and he would get on the horse and he had beautiful balance and he could throw things and...they ride bareback. And he could get on the horse and...do all this crazy stuff, and I'm like, "On the ground he can't do that, and now look at him." And he's going crazy on this horse. So it's definitely a, maybe just a...it makes them forget, "Oh I can't do this". And since it feels funny anyway, they don't realize...

Bob's mother endorses this theory, "Yeah, I mean...he'll do stuff easier on a horse than he will if we're in here and I'm telling him to." When asked what she thinks causes this, she replies, "I have no clue. The only thing I can figure out is because he's concentrating too hard on staying on the horse so he can't argue a whole lot!"

Social benefits.

Social competence requires skills and abilities that allow a person to interact effectively with others in diverse societal situations. The process of socialization begins soon after birth and continues through exposure to a variety of roles and interactions as the child matures (Edelman & Mandle, 2002). Children become socialized through opportunities for collaboration, cooperation, competition, and compromise (Murray, Zentner, & Yakimo, 2009), and appropriate socialization can play a crucial role in an individual's future level of functioning and positive mental health.

Infants going through normative stages of development in the first year of life will become attached to their caregivers and will begin to recognize and respond properly to the emotions of others (Berk, 2004). A *sense of self*, or *self-recognition*, begins to

emerge as the child recognizes that his actions have predictable effects on those around him. As the child matures through the next two years, his ability to interpret and react sympathetically to the emotions of others marks the development of the characteristic empathy that is fundamental to positive interaction with others. Strong relationships with parents, caregivers, siblings, and friends, plus gradual exposure to group situations provide a basis for development of self-esteem (Edelman & Mandle, 2002).

As the child matures through the pre-school age, his self-identity is strengthened through participation in cooperative exchanges with other children, particularly through joint interactive and make-believe play that allows him to practice taking the perspective of other roles or imagined personalities. *Social sensitivity* (Edelman & Mandle, 2002) increases as the child learns to understand the roles of others, accurately perceive social cues, and take part in reciprocal verbal communication. The ability to interpret and understand the emotions of others and consequently predict or alter their behavior motivates positive social behavior and allows for the development of early friendships (Berk, 2004).

Peer relationships become increasingly significant to personal development through middle childhood and adolescence, as the child begins to transition from reliance on family toward increasing independence (Berk, 2004). During this period there is a natural tendency for the child to strongly identify with a selected peer group or clique and adopt the values and behavior standards modeled by that particular group. Children who do not experience this group attachment are considered at risk for rejection and loneliness. As peer relationships help form a foundation for future interpersonal relationships and bridge the gap between childhood and adult social roles, the degree to

which a child *fits in* is a powerful determinant of healthy socialization (Edelman & Mandel, 2002).

Language development has been previously discussed earlier in this chapter as an aspect of cognitive processing, but will be revisited here as a feature of social interaction. Communication involves not only formal spoken language but also vocalizations, facial expressions, body movements, and other nonverbal behavior (Murray et al, 2009). Infants communicate through eye contact and facial expressions and gestures such as reaching, as well as crying, cooing, babbling and assorted other sounds. Continued speech and language development is dependent on environmental stimulation and reinforcement as the child matures and progresses in both comprehension and expressive language. Most children produce their first recognizable words between 10 and 18 months of age and have a vocabulary of at least six words by 12 months. During the toddler stage of one to three years, the child begins to learn to communicate in an understandable manner, which forms a basis for controlling inappropriate behavior and understanding the world around him as defined by his particular social setting. Effective communication involves not only correct usage of language but also of social speech (Murray et al, 2009) that requires an understanding of the perspective of another person involved in conversation. Continued progress in social speech is affected by the amount and quality of the child's interpersonal experiences.

Lack of appropriate social interaction is a classic feature of ASD. Depending on the age of onset for symptoms, indications may be observed in infants who do not exhibit a social smile, anticipatory posture for being picked up, or normal eye contact (Sadock & Sadock, 2003). Attachment behavior may be impaired, and the child may not

demonstrate a strong affinity for his primary caregivers, although deviance from his standard routines may produce stress. As the child matures, there is a typical lack of ability or interest in interacting in play with peers, and he is characteristically incapable of taking the perspective of others, resulting in a lack of the empathy and ability to correctly interpret the social behavior of others that is so critical to successful social relationships. Communication issues range from language delay to language deviance; approximately 50% of children with ASD will never develop useful speech (Sadock & Sadock, 2003). These factors can effectively cripple any efforts on the child's part to develop friendships or fit into a peer group as he ages. Many of the archetypal features of ASD -- child prefers to be alone; has few friends; doesn't fit into a group; spends excessive time in front of the television or computer; is uncomfortable in social situations--would be considered warning signs of stress in a *normal* child (Murray et al, 2009) and potential precursors of emotional health issues. References to social gains through participation in the therapeutic riding program were made in all three focus groups, and by all staff and family members interviewed.

Examples of social isolation.

Comments made by family members in the current study support this description of the social limitations of children with autism spectrum disorders across the developmental years. Four year-old Gary's grandmother remarks, "...he isn't really good at playing with kids yet...I'll ask him about school, who his friends are. He doesn't have any." Steve's mother describes the self-imposed isolation of her 16 year-old son:

Steve doesn't like to get out of the house. He's a homebody. You

know...because he has so much stimulation at school all day because he's going a

full day so far this year. And so by the time he gets home at night, he needs that time to chill and be in his room. So this [riding at CKRH] is really his only source of...socialization outside, yeah.

Jim's mother has witnessed many different stages of her 23 year-old son's complicated social development:

[He]...doesn't like being in a situation where he doesn't know what's going on, where it's a new situation, although he's very gradually making real tremendous progress with that. But at the time...there were so many places we couldn't take him. He couldn't handle birthday parties, even his own...we'd try to give a birthday party for him and have to take him home...he'd be the only one not there, yes...

From her dual roles as the mother of a child with ASD and a pre-school teacher, Jim's mother comments with a broader perspective on the negative consequences of the typical social isolation of children with ASD:

...I try to keep him busy and going and doing things. And to tell you the truth, the more of that we can do with him, the better it's been for him...but the reality is with him, and I find this with so many of the other—I work with kids with disabilities as well—that social isolation tends to exacerbate their problems.

Increased social opportunities and interaction.

The therapeutic riding program provides opportunities for increased social interaction in a supportive environment where children with ASD are encouraged to interrelate with others, as illustrated by volunteer Jo Ann, "There's all sorts of social interaction with people their age...other children that have disabilities, adults that

don't...I think it's good." This is a critical objective expressed by Brian's mother, "His biggest challenges are in the social area," and Kerry's mother, "And so in social situations, he's going to be more overwhelmed. He's going to be a little bit more overstimulated and that's how he reacts to most things." Jerry's mother has witnessed progress in this area during her son's time with the program:

...I believe socially, Jerry has come a long way...obviously...being social was one of Jerry's biggest downfalls, which is part of autism...but he has made friends. Not only with the other riders, but also with the instructors. Jerry thoroughly enjoys coming here. There is no fear.

Although gains in social skills may certainly result from a variety of influences as the child ages, Wayne's mother has witnessed obvious improvement in her son during his participation in the program. When asked whether she expected such progress in social interaction through his riding lessons, she responds:

Actually, social has surprised me most of all...because he has created, or he has gotten such a bond with Jo Ann...and he knows, if not by name, he knows by sight almost all the sidewalkers, or the [horse] leaders. And he'll just come up to them and start talking to them whereas...two years ago, that wasn't [possible]...I don't know if it's just because everybody's been so friendly and they talk to him and it's getting him out, or if it has something to do with him going to school...and being mainstreamed now...I'm not sure where it's coming from, but all of a sudden...in the past two years we've come down here and he's made such huge changes since we've been here that it's just unbelievable.

Steve's mother also appreciates the safe haven CKRH provides:

He's had a hard time at school. He always has...having Asperger's syndrome, a lot of the kids have that problem socializing with the other kids...And so he's not accepted by his peers that much. So to come and be able to get that confidence from people here.

Jim's mother finds the social aspect of the therapeutic riding experience valuable for her son who, like many children with ASD, prefers to spend much of his time in his room:

...when we're at home, I can get him out of his room some, but he basically spends most of his time in his room...The social skills...has been a big thing for him because there have been periods of his life that this is the only place that he really socialized with anybody. So the social aspects of it has been really important...And...I really credit this program with a lot—with the majority of it, in terms of making him more comfortable being around people...

Adolescent clients with ASD face new challenges as they become interested in the opposite sex. During the first volunteer focus group, Alex indicated he felt that his client with Asperger's syndrome, Steve, felt comfortable enough in class to communicate more freely:

...I think that is helping him maybe socialize a little more. And then it's just a different atmosphere and...he's old enough that he notices girls and stuff, so...he's a lot more communicative and you can find out how his day was at school and things like that...but...he's just socially inept in some ways. I guess is the best way to put it.

Class activities are designed to encourage interplay between all participants, including instructors, volunteers, and riders, as described in the second volunteer focus group:

Perry: I've seen a lot more interaction between the kids themselves in this last session, more so than I did in the first session.

Margi: Are these some of the same kids?

Perry: Some of the same kids, uh huh.

Jo Ann: A lot of them. Most of them are the same.

Perry: And I think...part of that is like I work with Mary...she has them waving at each other as they're...on the horseback, and greeting each other...I think that has helped with that.

Volunteers in the first focus group conveyed similar observations from riders in other classes, including one client who rides without the aid of sidewalkers next to him:

Shirley: Well...they have to...be willing to work with people because they've got a leader and two sidewalkers and a ring full of kids...And the horses.

Sherry: But some of the exercises, where they're passing something to each other, I've seen that they're much, becoming much more aware...of their team members ...that are in there, and it seems to be an easier thing at the end of these two sessions. So some of them are just finding it much easier to reach this over and give it to so and so, and more of an awareness of this person that's also there with them. So I think it's great.

Alex: Well mine's a little more—rides more independent. There's no sidewalker with them, and he's very good at following whatever you tell him... but you know, he doesn't really have a lot of interaction with the others.

Shirley: But...his interaction with people in general has increased in the last probably two or three years. I mean, used to, he wouldn't talk at all, and now he'll talk.

Rick's progress at a social event sponsored by CKRH was noted during the instructor focus group:

Barb: Well, I saw this student and his father at a party that we had back in the summer, and...I noticed that he seemed to be able to keep him focused, more, than I remembered him being able to do, especially in a social situation like that where there were a lot of people, people he didn't know.

Denise: And that was a situation that was not in the lesson environment; it was purely a social party setting.

Barb: Yes, exactly.

Deb: That's really neat to know that.

Barb: So there were some people he knew, and some people he didn't know; he was in a different environment entirely. It was a party—it was in a barn, but it was a party!

Each summer CKRH holds a major program fund raiser at Keeneland Race Track called *Night of the Stars* that includes a simulated auction of costumed therapy horses and clients. Hundreds of attendees plus live music contribute to an atmosphere quite unlike that of the regular riding facility. Eight riders are carefully selected to participate each year from the large pool of clientele. Such a deviation from the regular therapeutic riding routine could prove to be an insurmountable trial for a client with ASD, but Executive

Director Pat describes successful outcomes based on retaining some reassuringly familiar aspects for the clients with ASD who are faced with a very new social challenge:

...we have had surprisingly a couple of our autistic clients that have participated. And although it was really something that could have gone either way...we were very fortunate and it has always gone...in the way that one might expect...I think it all has to do a little bit with expectation sometimes and knowing the child and it's the same horse, the same people that they ride with.

Increased communication.

Increased eye contact.

Clients are regularly encouraged to communicate in an appropriate manner with their class volunteers and instructors. Especially with nonverbal clients with ASD, efforts are made to attain the reciprocal eye contact so often lacking in these children, as described by Gary's grandmother, "O.K., when he was about a year, he couldn't look at you. He would not look in your eyes...He would turn his head away." One other useful consequence of having the sidewalkers located in close proximity to their riders during a lesson, besides increased rider safety and stability, is the greater opportunity to meet their gaze, as Denise reports in the instructor focus group:

...I think some of this is just a matter of logistics, actually, but it's kind of neat...documentation shows that individuals with a diagnosis of autism...have trouble making eye contact, so we're continually focused on that eye contact...I think sometimes we forget, when we're working with the pre-schoolers and smaller children, we're not always *on* their [level]...we're not *down* here talking...but...when we're talking about social interaction, appropriate

communication, appropriate eye contact, well, when they are receiving directives, the person is right there – most times, hopefully, if we have *some* level of matching [height] with volunteers – they’re at eye level, they’re at eye contact.

It’s not a struggle to [meet their eyes], so I think that’s kind of a side effect...

Volunteer Sherry has witnessed such a result while working with Jan, “I mean she’s starting to look at me a little more when I’m sidewalking...she’s the young woman that wouldn’t even come into the barn.” She also noted the same client had made some apparent progress in reacting to a classmate, “...I’ve seen her make eye contact a couple times, and actually give a smile, a real smile...she smiled at something another rider was doing and you could look and say, ‘Oh look!’...because her whole face lit up. John’s aunt has noted improvement when soliciting her nephew’s attention, “...we just saw...a greater attention span after he started riding Socie, and he actually gives us better eye contact...we can say ‘John, listen’...and he’ll look at us...Like he...is understanding more...” During the instructor focus group, Denise recalls quite a unique experience she had with Robin, whose treatment goals included improved eye contact and age appropriate conversation:

...one of the students...when he first came to the program...three weeks in we were working with a mini [miniature horse]...and all of a sudden he just...looked at the mini’s eyes...and he said, ‘Eyes. Eyes.’...And he touched the mini’s eyes...That was *huge*. This child had never acknowledged, and actually, at his early age, one of the initial signs of the autism was a total lack of eye contact. That was huge; that was life-changing for this individual. And in that case, I know it *did* transfer over to humans.

When asked to explain Robin's sudden interest focus on the miniature horse's eyes, Denise had no definitive answer. "Those were not the first set of eyes. He'd had a dog at home; he'd seen the dog's eyes. *Why* did the connection happen with the horse? I have no idea." Alan provided a fairly simplistic theory, "Well—they're big!" During her personal interview, Denise again referenced this story, crediting Robin's atypical fascination with the horse's eyes as an important foundation for progress in other areas for a child who was initially fearful and overstimulated by the novel environment of the riding facility:

That was...to my knowledge and understanding, the first time he had ever really identified eyes...other than a picture...and he looked into the horse's eyes and he wanted to touch. So with that connection then that motivated him to actually touch the horse, which he had not wanted to do...we built from that point and I do think that...as we continued through the process, he did learn...to accept. He developed trust for the animal, and then we went to the mounted activities and started obtaining the benefits from the movement and things like that.

Class communication.

Class procedures are designed to elicit conversation from the clients, with respect to their current level of language capability. For example, the rider is always asked to make some effort to ask his mount to "Walk on" before the horse leader will begin to step off with the animal. Robin's mother noted an almost immediate improvement in her son's verbalizations when he began participating in the program:

Oh yeah, oh it's very positive. And just learning to communicate with them because when we first came here at four, he still wasn't talking all that much. But

I noticed here he was really talkative. And...one of the first times we were here, he came around the ring and he barely talked to anybody other than us, and I heard him say, 'Walk on.' I thought, 'Oh my gosh!' And so I was sobbing watching him on this horse, first of all, because I didn't think he was going to do it. And secondly, actually talking to the horse and to the people and doing what they want him to do. And then he started realizing, 'I have to talk here, because I have to tell them if I'm scared, I have to tell the horse "Whoa" and "Walk on"...and so...it really motivated him to talk and have conversations with people. So...it's just been an amazing experience

As Robin's mother notes, if the child has a problem or concern that requires attention, he is more motivated to communicate his needs to those assisting him, and volunteer Jo Ann agrees:

It...forces them to talk to people and—well not really talk to the horses, but...be able to give directions and communicate what they need. What they can and cannot do...if they have an issue, like if they have to go potty, which has been an issue sometimes...they have to tell us before they have an accident.

That necessity for prompt toileting has inspired greater verbal efforts by Doug, as reported by volunteer Shirley, "...one day he just turned around and looked at me and said, 'I need to go to the bathroom.'...clear as a bell...But he usually wouldn't give you full sentences, you know."

The individual attention each client receives from his team can compel the child to interact to a greater degree than in other activities in which he participates. Wayne's mother notes, "...the social time was...to have to actually look at people and tell them his

name and to ask them questions and to listen to the directions and get that kind of affect from it I guess.” A comparison to Robin’s gymnastics class is provided by his mother:

In gymnastics...they’re working on...their individual skills, but it is a group of kids. But there’s not all that communication going on. There’s not all that socializing going on because they go there, the coach shows them a skill, and then they practice the skill.

Instructors and volunteers often learn through trial and error how best to approach and motivate each client, as discussed by Alex and Shirley in the first volunteer focus group:

Alex:...with Dave I just kind of keep the instruction shorter, what you tell them, and then usually he repeats it back..

Shirley: See...he wouldn’t do that when he first started riding. We’d say it to him and he wouldn’t repeat—so that’s where you don’t know if he’s getting it or not. But when he can repeat it back to you.

Alex: But you know, on like the nights that he’s not listening, if you stop the horse and tell him, “We’ll have to get off...”

Shirley: He’ll listen.

Class activities often require verbalizations from the child, which Wayne’s mother feels has generalized to other situations as well:

...what they basically play is *Red Light Green Light*. And he just loves that. And it’s neat because then he has to watch and pay attention and follow the directions. And... he’s getting more vocal in like...not just talking...he can project himself now when he needs to. Like when the teacher says, “What’s this say?”...he can

tell her even if he's a distance away in a loud enough voice, but not yelling...and he doesn't yell as much as what he used to do.

John's aunt illustrates specific lesson exercises focusing on receptive and expressive language skills:

And they had these big letters out there now, like A through K and I don't know how far it goes up. But...they have a little one that matches each letter. And they get them to say..."Look John, this is a K. Say K," and then he'll say, "K." And they stop Socie while they do that and then after he says it and he throws the letter down, then they go. ...and they do counting also. ...they'll say, "O.K., 1," and he'll say, "2, 3,"... and he'll go up to 10...And they'll say, "Ready, set" and he'll say, "Go." Or, "1, 2, 3," and he'll say, "Go."

Volunteer Sherry didn't initially appreciate the significance of her client's articulations during one lesson:

...One little girl that I've been working with for a while is nonverbal pretty much. She'll say "Whoa" and she can make a sound, "Walk on," and say a few, but basically not much. And we're doing a matching up, like the purple ring goes here...and I asked her what color she had and she said, "Purple," and it...wasn't perfect, but it was obvious what she said, and I think she said, "purple, blue and yellow" that day. And I thought, "That's great, that's great." And I didn't think a whole bunch more about it...and she dismounted and went over to see her mom and I said, "Well, she said the colors." And Mom started to cry. She'd never said them before...And I was stunned, because while I know she's not terribly verbal, I didn't know she'd never said her—but she knows them. She knows her colors.

Executive Director Pat has witnessed successes for verbal clients with ASD who have greater problems with inappropriate speech, "...things that I have noticed myself...for children that have inappropriate communication disorder...as part of their symptomology...they have really...benefited greatly."

Nonverbal communication with horse.

In order to hone their riding skills, clients must learn to communicate with their horses as well, which involves utilizing both verbal and nonverbal cues. Kerry's mother, realizing the additional challenges and rewards this can present to a child with ASD with compromised communication skills, regularly coaches her son through his frustrations, emphasizing the use of both spoken words and body language:

...and he's learned. Like we've talked about [Kerry says], "Oh it's so hard. ...sometimes I pull and pull and the horse won't turn." And I'm like, "You've got to talk to him." And the communication thing comes in because he's got to...communicate with this horse. And he's like, "Well how am I going to communicate...how am I going to tell him?" And I'm like, "He's listening. Talk to him. You tell him, 'Hey, let's go...walk on.' You give him his commands. He's listening for those." And then your nonverbal commands, which is also something that...he doesn't pick up on well...but it's getting better with that, and I...really think that...riding has just really made him maybe become a little bit more aware of those things.

The ability to accurately interpret nonverbal communication is essential for a safe and successful relationship with the non-speaking horse. This can be a daunting task for anyone unfamiliar with this animal, but perhaps especially so for clients who typically

lack this capability in human interactions. Executive Director Pat recreates typical instructor dialogue designed to help clients determine the correct interpretation and proper response to equine body language cues:

“Look at your horse. Its ears are back, it’s looking at you, it’s backing away from you, what is that telling you...in your approach? Is this loud voice...[and] running right up to their eye and waving your hands...is this a happy sign?...look what your horse is doing. How can you approach your horse and make your horse look different? Can you get rid of these things on your horse’s face? You know, ears back, horse backing from you?” And a gentle way to come up to them and approach, which helps...[the clients] a lot in their approach to people. Eventually that translates into... “Do I run up and get in somebody’s face and scream and wave my arms?” ...So...I think a lot of that is just a life skill.

Three parents noted the additional motivation for their children to communicate with people who share their love of horses. Jim’s mother, unfortunately, does not share his interest, “And he loves talking horses with people and...So I’m like, ‘Oh please, Jim, don’t talk about another horse. I’m dying here.’” She credits one volunteer with making a special effort to cater to his somewhat obsessive interest in horses:

...when we first came...his speech was pretty much...one syllable answer...“Yes” he will, or “No,” or...just follow instructions and now...as he’s gotten older...and partly his communication skills have increased, obviously, but I also think it’s partly the fact that he’s comfortable here and...these people are into horses for the most part, and like to talk to him about horses and...they’re teaching him about horses. Jeanene, in particular, has spent a lot of time teaching

him about horses and spending extra time with him and...he's just eaten it up. He loves it.

Robin's mother views this shared interest as a basis for forming relationships, "...another thing...that is so hard with kids with autism is to make friends. And just even communicate with people. Even wanting to communicate with people. And so here he is with people who have this common love of horses."

The researcher questioned whether these horse-related conversations continue away from the CKRH facility. Jerry's mother responded, "...when we get home... he'll have his riding helmet in his hand and he will tell every neighbor that is outside...that he was riding his horse. So he loves it and he thinks he's big stuff." According to his mother, Kerry requires a bit more prodding:

If someone mentions it to him. I don't think he would ever initiate a conversation about riding, but if it comes up, if someone's talking about horses or...I think he was with a speech therapist and she had some little horses. And I think he said something about, "I ride Zippo...Zippo's my horse and I take care of Zippo." And then she was able to ask questions about Zippo. And he responded really well.

Despite initially being quite physically abusive to his mount, Bob's mother reports his consistent desire to chat about his horse:

...you know from the get-go...we left the evaluation and he talked about Socie. [Although he] Beat the fire out of that horse...you ask him, "Bob, do you go riding?" "Yes, I go ride Socie."...He does talk about it away from here. He'll tell people that Socie is his horse.

Jim's fascination with horses doesn't stop when he leaves the CKRH facility:

He talks about horses nonstop...well that's a big obsession. It's his only real conversational piece...because we can still ask him things about what he did today...and he always ends it with... "And I came home and found a horse in the barn." But we don't live on a farm. We don't have a barn. We don't have a horse, but that's his thing...And his room is the farm office...he's gotta go home and go to the farm office...So he's...very into the horses.

Learn how actions affect horse.

Being able to recognize and predict the effect one's actions will have on another is an essential step toward taking part in appropriate social interaction and developing relationships. Therapeutic riding clients must learn to work cooperatively with not only their instructors and volunteers but also with their mounts in order to become more skillful riders, as discussed in the instructor focus group where the concept of receiving and interpreting feedback from a more complex being is also introduced:

Alan: Plus, they are a team...unlike a dog, or a cat... the two of them make a team, if the rider's not riding the horse and telling him what to do and giving him his cues and everything, it doesn't happen. If the horse is not getting the cues...it takes both of them to communicate with each other to make it happen.

Deb: Instant feedback

Denise: Instant feedback is a good word.

In some cases, this human/equine interaction begins with the client on the ground, learning to properly lead the horse. Executive Director Pat provides an illustration of the typical progression of the learning curve:

Pat:...some severe autistic clients lead a mini, which we sometimes do...you put them on the shank with a mini...and they're going to hold on to the lead line at the furthest point down so they have no real control over the horse. And you try to get them to hold it correct, but left to their own, they're going to hold it the furthest point down so they're really dependent on the mini to sort of...

Margi: To lead *them*.

Pat: But when the mini decides to go this way [indicates mini moving away from the child]...at some point they need to make the choice to let go and then they have a loose mini...and everybody goes and catches it and tries to teach you, "Hang on to it!" or try to figure out how to negotiate what will make that mini stay with them better. And so sometimes...they go out together and they veer off to a 'V' and everybody's chasing the loose horse, and they are oblivious to the fact that they have just turned a horse loose. Just sort of wandering around...not tuned in. But then over time...you'll look out there and you'll see and the same children...walking with the horse, and they're clearly in control of their horse...it's a skill that they've learned. They've learned to control themselves a little bit. They've learned how to use their control to affect that horse.

Kerry's mother reports the importance of developing an appreciation of the horse's ability to read the handler's nonverbal signals as well:

...and I think he's finally started to get that connection too. Because he used to just get on the horse and it was like something he rode on. But I think after a while he started making more of a connection, which I really wanted him to do because sometimes it's hard for him to make that kind of...connection...with

people, with horses, animals...because their communication skills are so awkward, and not very skilled...but...I think he's finally starting to make more of a connection, because they even told him..."You know when you're on that horse, that horse's ears are turned back and they are listening to you and he's waiting for your command and he's waiting for you to move"...and he's like, "Oh, he is?" And I'm like, "Well yeah, watch his ears. He's constantly listening and wondering what's going on." And he's like, "Oh," because he's...[Margi: He's not just a car.] Yeah, exactly. Like push the button. Yeah, "He's paying attention to you and he knows if you're...nervous, or he knows if you're happy." You know...sometimes the horse is not so happy...

Fit in as part of a team concept.

It is common for children with ASD to miss the experience of being an accepted member of any type of group outside of the family setting, which is a significant step toward forming interpersonal bonds. The therapeutic riding facility is cognizant of this need, as Deb responds when asked to address relationship building during the instructor focus group, "We work on that as well. I think it's all part of the social interaction that we're looking to provide...being with other students, being with your team." Rick's father volunteers as a sidewalker in his son's class, but he has purposely avoided working in his son's team during the lesson in order to encourage more direct contact with less familiar program personnel:

When we first started out...from his standpoint...it was more of..."You're going to have to be there, and...I'll just kind of accept it"...but now...he's very much in with the group of people that he sidewalks with and the leaders and stuff. He's

very interactive with them....so from that standpoint, again, another reason why I didn't want to be with him. I wanted...to help bring up social skills, again, that he can talk and be comfortable with other people...so that's really helped as well. Kerry's mother describes the value of participation in peer groups through both the regular lessons and at the annual fundraiser, *Night of the Stars*.

And this class has been good for him socially, with the other kids and kids his own age. I think he feels a little more like they got a little group...and then doing the *Night of the Stars* kind of helped too...because...the little girl, the blonde, she was in it...and...then Peter was the engineer and...so it was really exciting, so that actually did help him...

Members of peer groups are typically subjected to pressure to conform to group standards of behavior. Although children with ASD demonstrate a classic deficiency in peer interaction, the instructors feel this concept may add to the motivational effect of the client sitting atop a horse when encouraging unwilling class members to fully participate in all activities, such as the potentially uncomfortable sensory experience of placing one's hand into a bucket of sand:

Denise: This child would have never have done that if he hadn't been on horseback. Sitting in a therapy room; in physical or in occupational ...which is where he would have been doing that. And getting him to reach in and touch sand would have never...

Barb: Well, there would have been no motivation.

Mary: And then seeing all the other students, seeing all the other students do it, "O.K., it's your turn! O.K., everybody go around. It's your turn; it's your turn."

Learn to trust others.

An essential component in developing friendships is learning to trust another person. Rick's father is mindful of the significance of this aspect of normal social development, and is glad his son prefers not to use him as his personal sidewalker, even though he volunteers in the same class:

I've never worked with Rick [when I am volunteering in his class at CKRH]...because Rick needs to know and at the earliest stage as possible that he needs to be able to count on other people and not just...my wife and I...or my extended family. That he needs to be able to...trust other people and that...other people can care for him as well, so...I made it specifically clear that I would be with another client...now this...session on Saturday...they wanted to put me with him. I tried the first time and he emphatically said, "No Daddy."

Clients frequently develop trust in their instructors, which is crucial for continued improvement in their riding skills. Mary recounts an example of her interaction with Jan that has helped the student progress toward mounting a horse for the first time, following her extreme initial reluctance to become involved in any equine activities:

...we very much get along...she'll laugh...and she'll smile...and I think we have built up a rapport...between the two of us...and...we have now gone...up on the mounting block. Last lesson we had Annie [the horse] come in the mounting block so she could visualize the horse standing there, and she touched her. And...she gets on the Equicizer [a mechanical horse]...and...I think that...she's built up a trust in me; she knows...that I would never let anything...happen to her. And that I would never force her to do something she wasn't comfortable doing.

Denise describes a similar connection that Steve has with his instructor, Alan who encouraged him to participate in the Special Olympics:

...when we approach this individual [Steve] about...entering Special Olympics and he was really nervous about the pattern. He says, "I can't do this," and he goes back to his mom and he tells his mom, "Well Alan must really believe that I can do this." And she said, "Yeah, he does." And then he goes to Special Olympics and he wins a gold medal!...Alan believed that he could do this...and he transmitted that and he did it. And he did it.

Form bonds and relationships.

Forming relationships with others, especially outside of the family structure, can be a daunting task for most children with ASD due to their restrictive social skills.

Younger children often display no interest in interactive play with peers, as Gary's grandmother notes regarding visitors to the parents' home, "...I know when...friends of theirs come over with a little boy his age, he doesn't really play with them." Robin's mother expresses appreciation for the social connection that is possible at CKRH:

...of course, with autism, that's something a lot of people aren't fortunate enough to have, to see their child form an attachment and a friendship and a relationship. I mean, he's not doing that in gymnastics. I think it's because there's not—the opportunity is not really there...here it's a constant relationship that he's really fostering.

Adolescents and young adults with ASD may feel a greater sting from a scarcity of friends, as Jim's mother conjectures that his occasional aggressive behaviors may be a

consequence of his communication difficulties and "...also his frustration at only having one or two people in his life. I mean we all need a little more than that."

The riding facility personnel are very cognizant of the need to match teams of instructors and volunteers to each client, based on personality and individual needs. Substitutions need to be made on occasion, as discussed during the first volunteer focus group, which may cause a break in this continuity and potential problems for the client, but can also reveal additional effective combinations and provide expanded contacts for the child:

Shirley: Some [combinations] just doesn't work... you try to have a team but you've got people that don't show up so you do swap your volunteers around and then with that, sometimes you...hear somebody go..."Oh I loved working with..."

Sherry: ... Yeah, I've seen a reaction from one of the riders when she had a sub. Then with the person that was usually there, much more responsive as far as following her...to pick up the rings and...

Shirley: And some of the volunteers are more assertive and some of the kids like men better than women...

Kerry's mother senses some disruption on a day when there has been a substitution, "...today he doesn't have his usual sidewalker. And I think it's throwing him off, even though she's very nice..."

With instructors.

Parents or family members of 13 of 15 children reported strong bonds formed with their riding instructors who commonly would be their most consistent contact over

time in the therapeutic riding program. Although her step-mother feels she has “pretty good social skills,” Jan does not relate very much to her class volunteers. She has, however, established a strong attachment to her instructor, Mary, an observation confirmed by team volunteer Sherry, “I think...Jan reacts real well to Mary and relates to her. And I don’t think she hates me, but I’m not really part of her focus.” Jan’s mother explains that the degree of comfort the instructor has with clients with autism is crucial, “...my observation here has been that she really doesn’t give anybody else much mind. She pretty much focuses on Ms. Mary.”

Meghan’s grandmother depicts the special relationship her granddaughter has with instructor Marsha and her husband, Tim, who assists with Meghan’s class.

...they’re very involved, and...Marsha can pick up very subtle differences. She’ll say, “Something’s just not right with Meghan tonight, what’s going on?” So, I mean that’s knowing your kids...And in between sessions, they get them together. Like we just had a bowling and pizza party. They still like that interaction...the personal interaction with the kids, at least, is going on...She likes Marsha. She likes Tim...well as much as Meghan ever interacts...But for a long time, Meghan called Tim her other dad...this was several years ago...we’d be standing there together, and she’d say, “And this is my other dad, Tim”...in her way, that was good...

Marsha and Tim are also favorites of Dave, and are linked with his positive memories of participating in the CKRH fundraiser *Night of the Stars*, according to his mother, “...He really likes them and they actually sidewalked at the gala so he remembered them...he still remembers them from helping him...” John began the program with Suzanne as his

instructor but is currently transitioning to Denise as his new teacher. His aunt mentions the challenge of adapting to changing personnel:

...well now with Denise, she's only been doing it maybe four or five times I guess. Suzanne's the one who worked with him the most, for a year and a half, and they had a very good relationship. And she was very patient with him. And...so I'd say that was...a plus. And he got used to her and her instructions. He knew what she wanted of him...

With volunteers.

The degree to which a client relates to his class volunteers, such as horse leaders or sidewalkers varies, dependant on variables such as consistency of team makeup, degree of direct personal contact, and the child's level of social maturity. Wayne's mother says he has been fortunate to retain one of his sidewalkers throughout his experience at CKRH, "... Jo Ann has been one of his sidewalkers the whole time...Since the first spring that he was here, so she's been with him for six sessions now." Program Director Denise suggests an additional rather simplistic factor which might be associated with the relationship with the sidewalkers:

Now what I do see is more social interaction with their sidewalkers if sidewalkers are applicable...one thing that I think affects that is just pure logistics...if a child is sitting on top of a horse and the sidewalker—they're closer to face to face than if a child is standing and the adult is standing...Making sure that when I'm talking to an individual...and they're not on the horse, that in some way we're on the same level—literally—to give them the opportunity to make eye contact and to reinforce that...

Clients tend to become attached to volunteers who take the time to recognize and converse with them, as John's aunt notes, "...Carolyn's always been just wonderful and she always takes the time to say, 'Hi, John, how are you?' 'Bye, John, see you next week'...that's important to me...that people recognize him...I like that." Dave's mother agrees:

...well we've switched nights so we have some different volunteers, but...he likes Alex, which is the guy helping him now...he says 'Hi' to him when he brings the horse up. And then he remembers Carolyn; that was another girl that was a sidewalker from last season. He still talks about her.

Kerry converses actively with his regular sidewalker, according to his mother, "...he usually has this really sweet girl, her name's Julie, he loves her...very sweet... loves to talk to her..." Robin's mother describes the significance and depth of the relationship between her son his sidewalker which is based on a shared passion for horses:

...[it] is so hard with kids with autism is to make friends. And just even communicate with people. Even wanting to communicate with people. And so here he is with people who have this common love of horses. And he's establishing relationships with them and he got very close to Don...Really, very fond of him. And he really wants to please him. And so I can remember so many classes where he would lean over and look at Don and say, "Mr. Don, are you happy? Are you happy?" Because Robin would do something and Don said, "Way to go Robin!" And Robin would want to make sure he was making him happy and pleasing Mr. Don. And I thought, "This is the first time he's had a relationship with another adult that's not my husband or me." And he really

wants to please him...my husband and I don't know anything about horses, so it's not like we share this bond that he has and this—of course we're interested, but we don't really know anything about horses, and here Mr. Don knows a lot about horses and he respects Mr. Don and I think he wants Mr. Don to respect in turn. And that was just an amazing thing to see, this relationship that developed between Robin and these sidewalkers and his instructors and...just making friends.

With classmates.

During group riding classes, the children do not come into as much direct contact with their classmates as they do with their instructors and their team members, but several parents reported some instances of interaction with peers. Meghan's grandmother was pleasantly surprised to witness this incident, especially considering how reluctant she is to hug family members:

Now, Jean is another little girl that's out there. And I noticed, which was encouraging to me, that Jean came up the other day and they hugged...most people think that's crazy, but for an autistic child to actually hug another—and [Meghan]...said, "Hi, Jean." And I thought, "Oh yeah. That's good"...

Dave's mother recounts her son's happiness at discovering a school classmate in his riding class:

And he knows JB from Rosa Parks so that was really exciting when he first came and saw JB here...And he just started riding again last session...And then he...was excited when he saw JB again because JB is going to a different school now...so...that was kind of good. So I guess there is a little bit of social...they

don't sit around and talk about it, but...he sees and says "Hi" to him and he says "Hi" to his dad. He recognizes his brothers and sisters and, you know that's all nice to have somebody that you recognize that comes back to your sessions...

Although care is taken to match children in group lessons relative to their levels of disability, riding skill and age group, scheduling limitations sometimes prevent the ideal mix to encourage peer interaction, as Kerry's mother relates:

Now this class has been interesting because... [there are] More kids all his age...because...sometimes you'd be with adults, sometimes he'd...be with teenagers. And he would be, like the youngest...when he first started, he was like five and everybody...and everybody else was like, I think the youngest was 17...So I don't think he really connected with them, which was fine by him...because he liked the sidewalker and everything. And...that was fine but...now...he's kind of made some friends. He talks..."Hey there's so and so," and...then we've done a couple of fundraising things with a couple other children.

Executive Director Pat has observed the formation of lasting friendships among CKRH participants:

And in some instances...the children end up being the peer groups outside of the program. We have a couple of those that...formed a bond in riding class and because they're the same age and have the same challenges and probably are lacking for friends in their immediate environment outside, they've kind of formed a peer group that started here so they ride together but they might not go to the same school together. But on the weekends they might hang out...It does happen. And certainly when it does, I think it lasts for a good long while. Kids

will get along and ride and they come together a lot through CKRH. I think we had two of them that, didn't they go to the same college when they got out of school? So I think they were roommates.

With horses.

While social skills are typically assumed to involve interaction with humans, therapeutic riding adds the potential for clients to bond with the program's horses as well. Promoters of this type of intervention feel it is, in fact, the presence of the horse that enables clients with ASD to progress in this unique environment. While enumerating the range of benefits the program can provide, Executive Director Pat pointed out, "...I think...for the autistic...children...just the awareness of the interaction that they have with themselves and their horse...it's interesting to watch some of them." Horses are adept at reading the nonverbal cues of their handlers and providing immediate feedback for actions directed at them, which challenges the client to supply appropriate behaviors toward the horse, as discussed in the instructor focus group:

Alan: ...The horse is living; it's a living thing. It's got a will of his own.

Barb: Sure, sure.

Denise: And he reacts to them.

Margi: [You can't just]...push the button.[to make the horse go]

Denise: They get reaction back.

Alan: And they know, I mean the students know that.

Barb: And you...get out of what you put into; and they figure that out pretty quick.

Volunteer Jo Ann has observed clients displaying some degree of empathy for their horses, “I think the kids can sense when the horses are not having good days.”

Variability among clients.

The degree to which clients relate and bond with the horses varies, as described in the first volunteer focus group:

Sherry: ...I've gotten riders that some of them are petting and hugging and kissing the horses, and other that just don't really—they'll give a pat if you say...something...that doesn't seem to have made a...

Shirley: Bond.

Sherry: Yeah, they like the riding, but it hasn't...yeah.

Shirley: Well, some of that may be tactile too.

Alex: I was going to say, I think every rider I've had appreciates the horse. I mean it's the fun of coming out here versus going to do something else.

Alex: I don't know; there's just a magic about the horse.

Some riders favor the mount they are regularly paired with, while Dave's mother notes, "...I think he likes all the horses. I don't know that he has a special bond with any one horse..." Brothers Doug and Brian have differing levels of involvement with their mounts, according to their mother:

For Doug it's the activity of riding...for Brian it might be a little bit of the horse...he rode a horse named Annie for his Special Olympics and...so he was...a little bonded... with her. I mean it's kind of like..."She helped me...be successful," and I remember after that event, he wanted to go back to the barn and see her and pet her and...we took pictures with his medal and everything...

Denise suggests that differing amounts of pre-riding time spent with the horse is one factor that can sometimes explain this client variance:

...the social aspect of it—what we provide—really varies...There are certain situations...such as...where the individuals come in, their horse is pre-groomed, pre-tacked, it's in the ring waiting on them; they walk in and they get on their horse and ride. For those individuals, I see less of the bonding with the horse.

Denise then recounts lessons which involve some degree of non-mounted contact with the horse prior to the riding session, "In those cases, I saw more interaction—more social improvements than I do with those who do not have non-mounted activities."

From initial fear to bonding.

Children must occasionally overcome an initial fear of the horse after their first encounter, as Jerry's mother relates:

...I think he was a little intimidated the first day we ever brought him here, and they brought the miniature in. But he had the separation anxiety...socially, he didn't want to be around a group of strangers...so he had so much anxiety, and they bring a horse into the mixture and he's like, "This is not right."...and it was a horrible hour...but after that, he couldn't wait to come back, not so much for the people, but for the horse.

After being "terrified of the horses" at first, John's aunt reports witnessing displays of affection for his lesson horse:

Oh, now he's got so...sometimes they'll stop Socie and then they'll get him off...at the end of the session. And she'll say, "Can you tell Socie bye?" Or, "Can you give Socie a hug?" Or, "Can you give Socie a kiss?" And he actually,

one day he broke loose from her and ran over and just hugged Socie himself, without being instructed to. He wanted to do that.

Children like horses.

When asked about the presence of the horse in the interactions with the children, Volunteer Jo Ann remarked in the focus group:

Well, they form attachments with their horses. If you change horses on them, it takes a while for them to get adjusted because I've switched horses and kids a couple times and they get real confused or real sad... "Where's so and so?" ...They really like their horses.

Jan's first comment on the journey to the riding facility is often, "Let's go see Merry Legs," her father recalls. Bob's instructor, Mary, has noted his allegiance for his mount, "...he rides Socialite, and that is *his* horse. And I saw him outside of this setting, "Well, hi, how are you? Are you gonna come ride? Tell these ladies, who's your horse?" [Bob replies] "Socie, Socie."...that is his horse. Robin's mother says he has ridden three different horses and developed attachments to all of them but, importantly, has exhibited the ability to view his and Zippo's relationship through what he imagines is the horse's perspective:

He really was fond of Zippo, but he said his very first horse was Socialite, I think, and of course he was very excited about Socialite because that was the first horse he had ever been on. And then we moved on...to Zippo. And we've been with Zippo for almost a year, so he really got attached to Zippo, and he would talk about, like on the drive here, he would say, "...Zippo really wants me to get him out," or her. I used to call Zippo a 'him' all the time and now he corrects me and

says, “He’s a girl.”...So he would say, “Zippo really wants me to get her out and she wants to ride today,” and so he was thinking about this relationship he had with Zippo and how Zippo was counting on him and...that was exciting too.

When asked if her son has a special relationship with any particular animal, Steve’s mother reports his strong affinity for the horse he has ridden the past two sessions:

Oh, he has with Justin. That’s what he says...because when they told him that he was going to get to do Special Olympics but he wasn’t going to get to ride Justin...his first reaction was, “Well I don’t want to do it. If Justin doesn’t do it, I don’t want to do it because we have this bond...so I don’t want to do it.” And then we talked a little bit more about it and he finally decided that he would go ahead and do it...

When asked if her son Wayne has a bond with his horse, his mother enthusiastically replies:

He does. I think he does...he really liked—he talks about the horses. A lot...Chico was the one he rode back last March...or a year ago March. And...he still talks about him. And Red...he just loves them. And...he wants to come and see the horses and we drive by to go up to Indiana...we pass by here. And all the kids wave to the horses on the way out...And it’s really a lot of fun, so...He’ll sit there and he’ll go, “Hi Chico, hi Annie!” And now, “Hi DeeDee.” Red gets kind of left out of the mix of things a lot of times...

Parents appreciate animal bonding opportunities.

Most other traditional activities, therapies or interventions for children with ASD would not offer the type of opportunity therapeutic riding does to learn how to deal

effectively with animals, as noted by Jan's step-mother, "I would say that it's good for kids, young adults...different than soccer because you're dealing with another live creature and that gives you some sort of...a connection." Although Wayne does become attached to his mounts, his mother appreciates, "...just to see him having the bond with the horses...not necessarily a particular horse, but just a horse in general. He loves the—he loves to be in the saddle." John's aunt readily promotes the CKRH program to other families with autistic children, "...I tell them, you've got to check this out. And I tell them how John was when we first started. And I tell them how he is now. And...just the relationship between the child and the animals...and I think that will carry over into...his relationship with kids and people in general..."

Magic of the horse.

When speaking to CKRH instructors and volunteers, a concept regarding *the magic of the horse* is frequently mentioned that describes some indefinable equine quality that promotes a special bond with the client that cannot be duplicated by another human or animal. Observations have been made not only of client behaviors during interaction with the horses, but also of equine reactions that seem specific to certain clients. During the second volunteer focus group, Perry expresses this viewpoint that stemmed from personal experience during recovery from an injury:

...I think...even beyond the physical aspect of it, there is an emotional bond to the animal and I know from experience what horses can do as far as...relieving pain and things like that...I think that there's this mental connection between the horse and the rider—the client—that it's not only a physical rehabilitation, but it's also the mental and emotional.

Although acknowledging that some would view this as a syrupy over-romanticized perception with no factual basis, Denise feels strongly that a special connection can sometimes occur in either direction during the instructor focus group:

Something in terms of the *magic*, in terms of the energy – I often call it the energy...it's a certain connection...I think...as a therapeutic environment as a whole...why does someone overcome these things to get to this horse that they don't know, when I can almost guarantee she wouldn't have done it if it was a dog – we don't know – but also, there's a certain magic and a certain energy between certain people and certain horses...We have a hippotherapy client right now that...the same little horse who can be quite sour, and doesn't want to move a lot...and her...way of telling you is her ear movement and her head movement and things like that. She has found this one little client, that, her gait is different, her movement is different, her ears are always forward, and this is not just a one-week thing. This has gone on, the therapist and the instructor...have tracked this over a period of five or six weeks now. It's repetitive; every week, it's the same horse's attitude with the same leader...everything being the same except this one individual–[the horse's] attitude is totally different...There is just something, and I've seen that with this particular horse, years and years and years, over and over and over. There's a certain energy there, there's a certain something that – people think you're crazy and people think it's the *ooey-gooeys* of the world, but it's...(laughter from group) *ooey-gooeys*, yes – document that! It's the *ooey-gooeys of the world!* But it's real!

Instructor Mary gave an additional illustration of a therapy horse that seems especially in tune to his riders:

Red is a perfect example...if his...rider is starting to go off balance, Red stops...if Red even thinks that his rider is uncomfortable, or maybe sitting too far back, or whatever, he gets this furrowed-brow look on his face; he's just so concerned, you can see it—it's written all over his face—he's concerned; he frets...And these little wrinkles come up on his face...and if you're leading him...he telegraphs everything to you. If you look at him, and he's got that look on his face, you need to be coming to the middle and stopping, and seeing what's wrong with your rider, 'cause I guarantee you, 100% of the time, there's something going on with your rider. Your rider is overheating; your rider is starting to fatigue; your rider...is sitting a little crooked; something is happening with your rider.

A third similar example was provided by instructor Barb that involves a horse that reacted in an unusual manner when he sensed there was something wrong with his rider:

...we had a...rider who had a seizure on a horse, and the horse had never spooked that way, and the rider came off...they went to the hospital as a result of the fall, to make sure everything was O.K., and they discovered this had been going on, that she'd been having too many seizures, and she had to have surgery. And that would not have been discovered...I mean, there's a connection that the horse and the rider have...that people don't even have with each other...

The instructors analyzed the human/equine bonding process as compared to interactions with other animals or pets, and theorize that a stronger relationship is forged when interactive training takes place:

Margi: And I like that you compared it to dogs or cats, because what about other animals? People like other animals; why would a dog or cat not be the same?

Except that you're not *riding* them, into a dangerous situation!

Barb: You're not connected in the same way.

Denise: No, you're not.

Alan: Well, you might be, if you were teaching a dog to do something. But, often time you don't do that. They only pet or play with them, rather than teaching them something.

Margi: Unless like they were doing agility or something.

Alan: That's right. Then they'd become the same thing. Now they're a team, and the student is to teach the animal that part of whatever they have to be doing. So, in that sense, you *could* do it with a dog, but you have to do it under a similar kind of setting.

Practice appropriate social behavior.

Six family members mentioned that the therapeutic riding sessions provided an opportunity for their children to learn and practice appropriate social behavior, whether or not they can fully appreciate the need for such actions, as Meghan's grandmother clarifies:

...I think that as far as being able to be socially appropriate with the volunteers, I don't think that Meghan really recognizes yet that these people are helping her and she needs to say thank you or...I don't think she has developed a relationship...I would like to think that it will happen...[but] I'm not so sure that that would ever change. What I do think that it allows us to do is to put her in a

social situation where she gets to practice, well, not necessarily develop a relationship, but “This is how I behave”...and even though she may not truthfully get it...she is being put in a situation where she is experiencing that and...that’s what is the important piece for them because you have to be able to carry that through, even if she doesn’t really truly feel it...like we feel it. Gratitude. But at least she is understanding that this is when you say, “Thank you”... I think that’s an important piece that’s fitting with other pieces that maybe all of it combined is allowing her to become more socially appropriate, but...in a new situation that has not been practiced, I don’t think that Meghan yet is ready to say “Thank you” and those kinds of things...But it’s critical, though, that she still be put in these situations to practice that.

One of the goals for the *social time*, according to Wayne’s mother, is “to have to actually look at people and tell them his name and to ask them questions and to listen to the directions and...get that kind of effect...” Instructors and volunteers are aware of the need to provide this encouragement, as Deb remarks during the instructor focus group:

...it’s all part of the social interaction that we’re looking to provide...being with other students, being with your team, but at the end of every lesson, we have our students thank their volunteers, thank their horse, and they usually go up and pet them.

Doug’s mother discusses the support for appropriate social behaviors at CKRH that is not always possible in his public school environment:

...one of my concerns...in that school environment is limited opportunities to... work on the skills that he needs to work on, which is simply...being able to greet

someone. And...because his peers...aren't worried about stopping and slowing down and saying, "Hi, Doug," ...and giving him a minute to be able to go, "Hi," whatever. And...they get that here...in other settings...well if he doesn't say it, well then we just move on or whatever, but...out here, just as an example...they don't walk the horse on until he says, "Walk on," because they know he's capable of saying "Walk on." Now...a few years ago that wasn't the case, but...we continue to move the bar relative to...what he's capable of, so...that's been good. And again it just gives him a great opportunity in an understanding setting...to work on those things.

Bob has achieved notoriety at the CKRH facility for his aggressive behavior aimed at both people and horses, first noted during his riding evaluation for acceptance into the program. Behavior modification techniques were instituted by his instructors that have proven successful and resulted in more acceptable conduct in other social situations:

Denise: And...one of the things I'm always noticing is that behaviors at four and five and even at 10 are one thing; behaviors at 19, 20, 25 and adulthood is totally different...If my *appropriate social interaction* to greet you is to walk up and hit you...which is what he did, whether it was horse or human...

Deb: Oh, really? With people as well?

Denise: Yes, yes, and he would still hit, but that's different...if that's what I view as appropriate in my brain, then at four, it may be cute – maybe not, when you hit as hard as he does...but at 24, no matter what the scenario, it's not cute anymore! So what's happened in this lesson, through this structure, through this therapeutic

riding lesson, is we've changed what is the appropriate interaction with Socie, to try for that to transfer – what is the appropriate interaction with other humans...

Mary: ...and his mother has said that has de-escalated...not to say that he doesn't have outbursts from...anger or frustration...but...that is not his everyday normal way to greet people now, and to interact with people. And even children, and I'm sure the children in his daycare are thrilled.

Margi: Really appreciate that!

Denise: Yeah – the first day he greeted me, I got a bloody nose – literally!!!

Deb: Are you *serious*??? Oh, gosh!

Denise: Yeah, it was me and [Executive Director] Pat out there, because we wouldn't put a volunteer in the lesson, so it was me and Pat sidewalking, literally.

Deb: Oh my gosh.

Bob's mother readily supports the group's report:

...in the beginning, everybody was fair game. If his hands were flying, you better duck. If his feet were flying, you better duck...and he does better with them.

Now he'll come in having a bad day and we try to warn them if we realize that the day is kind of rough so that they...put on their suit of armor...but there aren't that many of those anymore. You know, it used to be he hit poor Socie...I lost track...I think initially...part of it was the fear of just the heights and what to expect and what to do...but that's how he deals with them, unfortunately, through his aggression.

Despite the history of physical assaults, there are still opportunities to practice proper conduct. When asked if Bob speaks to others in his class, his mother responds, "You

know, I don't know. He will tell them goodbye when he leaves...we've made it a point, if they're around. But he at least tells everybody goodbye."

Horses or humans?

Clearly, there is interaction at the CKRH program between both clients and people and clients and horses. Is one type of relationship more effective, or are both necessary for the success of this intervention?

Deb: ...did you ask it, or maybe John asked it – about how "Is it the horse or is it just...[the instructors]"

Margi: ...he said it, and I was sitting here thinking it.

Deb:...I guess the way I feel is...yes...the way the way the instructors bond with the students or interact with the students is very important, but I think it's proof that these students have gone to several of the different instructors, and still they're improving and still they're...moving up, and excelling.

Denise: Well, we're talking about the human interaction, because, remember...in the description of that diagnosis – a lack of social skills; a lack of emotion; a lack of sharing; a lack of appropriate human interaction, is one of the side effects of the diagnosis, so just the fact that we're talking about that individuals connected with Mary or connected with Alan, or with Barb...and then have moved on...The fact that we're talking about the human relationships, to me is...a huge success, and that speaks to the horse, because it's the fact that we've got the activity with the horse that has brought us up to the human interaction. Does that make sense?

Deb: And that's our goal!

Psychological benefits.

The psychological benefits presented during data collection may all be considered constructs of personality development. Although there are many human growth and development theorists, the work of Erik Erikson has been selected as best reflective of the variables produced by this data (Erikson, 1950). Since there are no postulated theories to explain the abnormalities in the development of children with autism spectrum disorders, this introduction will not discuss Erikson's conventional developmental stages in detail, but will utilize many of his constructs to organize the data from this specific population.

There are no guidelines specific to optimum psychological growth children for affected by ASD, but it is assumed that achievement of stated developmental objectives for general populations should also be considered advantageous for this population, as the goal of healthy emotional development is to become an adaptive, effective social being (Murray et al, 2009).

Erikson's theory of the development of self and ego is tied to chronological periods of the lifespan (Edelman & Mandle, 2002). His psychosocial theory describes the basic need for an individual to develop a sense of trust in himself and in others, along with a personal sense of worth. He presents specific constructs that require a resolution of conflict to be resolved within the following approximate chronological periods in the growing child: infant/toddler (birth to two years), early childhood (two to six years), middle childhood (six to eleven years), and adolescence (puberty to adulthood). As each critical step is mastered within the appropriate stage, self-identity is strengthened. Many of his general constructs, particularly *self-concept*, are appropriate to more than one age

group as the individual matures and the tasks to complete within that general category are expanded or further developed.

Psychological variables are also affected by physical, cognitive, and social factors, and may therefore be categorized for the purposes of discussion in another part of this chapter. For example, although *trust* is one of Erikson's key concepts for the infant and toddler stage, data relevant to this topic are described in the social benefits section. While development of *empathy* is also vital to the foundation of social competence from this stage through early childhood, it is unfortunately a classic deficiency of ASD, and is also discussed in the area pertaining to social benefits.

Another hallmark of the infant/toddler stage involves the establishment of personal autonomy, or *self-concept*. Following the foundation of trust in caregivers during the first two years, the well-adjusted toddler begins to develop *confidence*, *independence*, and a *sense of security*. During early childhood, the tenets of successful self-image will be greatly expanded to include *achievement*, *locus of control*, *pride*, *self-care activities*, *self-esteem*, and a *sense of worth*, *body concept* and *gender role*. In middle childhood, self-concept now includes the accrual of personal values. The significance of self-concept increases throughout adolescence, when it contributes strongly to the emergence of *identity formation*, as do *participation* in character-building activities and *finding direction* in life.

The challenge of *self-control* begins in the infant/toddler stage and continues through early childhood. Concepts within this category include *control of emotions*, *reduction of inappropriate behaviors*, the acquisition of *patience*, the ability to deal with

transitions, and *toilet training*. Data related to toilet training are presented under physical benefits in this chapter.

The broad concept of *industry* emerges during middle childhood, and includes the goals of *challenge*, *task mastery*, and *self-efficacy*. There is also a focus during this stage on the emergence of *moral development*, which incorporates the constructs of *responsibility* and *trustworthiness*.

Children with ASD can present with a wide range of abnormal behaviors, including compulsive or ritualistic actions; unusual attachment to inanimate objects; rigid, monotonous patterns of movement; and aberrant postures or facial expressions such as grimacing, especially when alone (Sadock & Sadock, 2003). These children are classically resistant to change, often responding with aggression or temper tantrums, but they may also display sudden unprovoked mood changes. There is a characteristic lack of interest in participatory or interactive play or a willingness to share enjoyment of activities with other people. An abnormally obsessive preoccupation with one or more areas of interest may provide an exception to a generally restrictive pattern of behavior, interests, and activities (American Psychiatric Association, 2000). Impulsivity, excessive fearfulness of harmless objects, complete absence of emotional reaction and self-injurious patterns of behavior can also be representative of this condition. The trademark failure to relate appropriately to others places children with ASD at a disadvantage for healthy emotional development, particularly in the middle childhood years when social support is crucial (Berk, 2004). Although it is typically difficult for a child with ASD to express the reasons for his or her behaviors, older adolescents and young adults may be

predisposed to depression, especially if they have the cognitive skills to recognize the impairment that so effectively separates them from peers.

The data in this section are organized relative to the broad developmental constructs in the order that Erikson's theoretical concepts first appear in the chronological stages, but emotional and behavioral factors related to ASD may appear—or linger—throughout many age ranges.

Self-concept.

The quest for a healthy self-concept begins in the infant and toddler stage of development with the appearance of confidence, independence, and security (Berk, 2004), and remains a critical component that continues to develop through a variety of relationships and experiences as the individual matures through early and middle childhood to adolescence (Edelman & Mandle, 2002). Self-concept may be defined as the way an individual sees himself (Murray et al., 2009), and is affected by relationships with family, peers, and others; success in activities or play; the acquisition of skills; and self-control in daily living activities. Individuals with a positive self-image like and accept themselves for their physical characteristics and their abilities, values, and ideals. They have a strong sense of self as they relate to others, but can also appreciate and accept the factors that make others seem different from themselves (Murray et al., 2009).

Negative or low self-concept may lead to academic or adjustment problems for the school-age child, and feelings of insecurity, disillusionment, and alienation as the child moves through adolescence (Murray et al., 2009). Children who develop feelings of inferiority or inadequacy may prove unable to learn or complete projects and may experience difficulty working cooperatively with others.

Confidence.

Parents or caregivers of 11 of the children linked therapeutic riding with increased levels of confidence. When asked by the researcher about any noted changes in her son's self-concept, Jim's mother mentions, "I think more self confidence, maybe...to some extent...yeah, that self confidence, and 'This is something I can do and this is something I really enjoy doing.'" Meghan's grandmother expresses the need for children with ASD to receive this benefit, "...I think it's her confidence. I mean she's out there by herself...And she really sets a horse pretty I think...She feels confident...And they need something for their confidence...so we're very pleased." Wayne's mother notes, "...he just feels so confident, I guess...he seems more confident and he knows what he's doing and he feels good about it...he seems so much happier than he ever was." Robin's mother describes her observation:

...his confidence has just been huge since we've come here because he has actually known something...especially because he's such a little guy...he's only three and a half feet tall and he just hops right up on those huge horses. Yeah, and he's not afraid and he's excited to do it and he's good at it.

Jerry's mother illustrates a comparable reaction from her son, "Yes...it's an amazing...thing...I'm sure he has more self confidence since he does it...He thinks he's bigger than the world, so he rides a horse and no one else he knows rides one, so he's got one up on everybody." Brian's mother links accomplishment with improved self-confidence:

that's why this program has been...so gratifying for me, and has been so...good for him is that...it's...given him confidence and it's given him a sense of

accomplishment...in being...in the riding program itself, and...the biggest example of that is the Special Olympics and...he has done that twice and it's just been...I think some of the highlights of his life. And...it's just given him...great confidence.

When asked to name the most positive benefit his daughter had received thus far, Jan's father spontaneously describes confidence, "...it's kind of a combination of accomplishment and confidence...During the instructor focus group session, Mary supports this statement with an example of Jan's increased self-assurance:

And I think her confidence has grown in leaps and bounds; it's amazing...when I turned and I latched the gate and turned and she was taking that mini off down the track, I turned to her mom and was like [facial expression of amazement]. And her mom...she's like, "I couldn't believe it; she just, like, took off with her!!"

And I was like, "I know!"

Volunteer Shirley has observed the difference between less experienced clients and those who have developed the confidence in their ability to ride independently, without a horse leader:

...it's fun to see the little ones and I think you could really see the change there, but when you see the independent riders...it makes you pretty proud that they can do it...and that they have the confidence to do it. You know [you ask them], "Do you want to be off lead?" "Yes."

Kerry's mother regularly recommends the program to parents of children with ASD, "I just tell people...go out there and first of all it gives them a confidence." After both parents agreed that the program improves their sons' confidence, Dave's mother

generalizes her opinion to include all clients, regardless of disability. Rick's father, who works as a volunteer with the therapeutic riding classes, has also witnessed the emergence of confidence in many children:

And...I've seen other children, other clients ride over the years and...you take a very timid little child and put them up on a 2000 pound animal and then some don't like it at all...but I've seen others that... just love it and...you can see the joy in their face and the confidence that they...are on this huge animal and they're mastering skills and they're doing things with these animals. It's a great program and to see that is just wonderful.

The optimum outcome is that confidence developed through therapeutic riding activities can be transferred to other areas of a client's life. One such example is described by Mary when discussing Steve during the instructor focus group:

...his mom had said, "We're going to put him in school all day, every day, for the very first time; he just started," and...I thought about that and...I think if he is challenged in Alan's class and gets the confidence...and rises to the occasion of the other students in his class...that will give him confidence into going into the school year, and his mother confirmed that; and...she said, "And I bring that up to him; I say, 'Look – look what you've done! Gosh, you're in the highest riding class there, and look how much you've accomplished, and I know that you're going to be able to handle this too, and excel at it...'"

Rick's father expresses the same belief:

I think the biggest thing that he takes away from this is that...he has the confidence that he can basically do anything that he really puts his mind to. And

it's...a respect. I won't say no fear, but I'd say that he has a healthy respect for things and...he won't do anything foolish, but...he's more likely to try...certain things than even...what I would consider more mainstream kids...They're amazed that Rick will even get up on a horse. They're like, "I don't want to be around the horse"...and so from that standpoint...it's confidence, it's...a respect, and a willingness to be able to try other things.

Independence.

Three parents spoke to gains in independence and instructors made note of their students' common desire to ride independently, or *off lead*, without sidewalkers and a volunteer leading their horse during their lessons:

Mary: [In] my two Horsemasters classes, all I hear is, "When do we get to ride off lead? Jenny, can we ride off lead today? Are we gonna ride off lead today?"...They wanna ride off-lead, and then of course they wanna trot – they wanna trot...And...I'll say, "Well, when you can steer your horse, and you can stop your horse..."...And boy, that's all it takes! And they're out there; they're pullin', they're lookin',...they're turnin' and...That's the motivation...to be off-lead.

Alan: But why?

Mary: So they can be in Alan's class! (Group laughter.)

Alan: No, no!

Mary: So they can be independent! So they can be independent, and...

Barb: I think that's the big one, don't you?

Mary: Yeah...so they can be independent. They wanna be independent...I have...a little girl who is non-verbal, and we do an over-the-thigh hold with her, and she'll take that hand.... [demonstrates removing the sidewalker's hand]

(Much group laughter)

Margi: You don't have to be verbal to get that point across!

Mary: "I don't want your hand on me; I can do [it myself]..." And the sidewalker will say, "Mary, what do I do? She's pushing my hand away!" And I'll say... [shrugs as if to say, "Whatever!"]

The instructor group also discussed Rick's assertion of independence from his father, who volunteers as a sidewalker with his son's class:

Barb: Another measurable...is...that...for years, the program needed his father to sidewalk with him, because he *did* bail [jump off the horse] (group laughter), and his sidewalker, his father, was always the one to sidewalk for him. And he's not little; he was not little even then!

Denise: ...the last lesson that I taught him, which was three or four weeks ago...he did not *want* his father out there with him in the ring. He didn't want his father beside the horse. For him, this was a graduation, this was a moving up

Barb: Independence; that's real independence

Denise: "I am out here on my own. I still have a team, but it's MY team – my dad is out there."

Mary: 'Cause the...the session before, we said, "Well...his dad will be here...should we let him in as the sidewalker?" "No, no" [said Rick]

Brian's mother compares her son's riding experience to his participation in baseball, "Here...he's got the sidewalkers, but he's getting that feeling of independence and...he's getting the full total...input from that horse, whereas...the baseball...it's just more of a social interaction..."

Pride.

Pride (Berk, 2004) is cultivated through external recognition and positive feedback. Family members of seven of the children noted a sense of pride that resulted from accomplishments in therapeutic riding activities. When asked why she would recommend this program to other parents of children with ASD, Steve's mother remarks, "...it makes them proud. It gives them something to be proud of," and she recognizes a specific advantage to this activity for her son, "...he's not competing against anybody else because he doesn't like competition. So he can do it and be proud of it." Jerry's mother feels his success in a rather unique activity allows for this emotion, "...when we get home...he'll have his riding helmet in his hand and he will tell every neighbor that is outside...that he was riding his horse. So he loves it and he thinks he's big stuff." As his mother explains, Brian was selected to ride a costumed *auction* horse in CKRH's annual fundraiser this past summer, "...he...participated in the big annual promotion that they have...the gala, the *Night of the Stars*...he did that for the first time this past year, and thoroughly enjoyed that, and just gives him a great sense of pride..." Meghan's participation in the Special Olympics caused her grandmother to remark, "...when she can go out to Special Olympics and she can ride that horse and so the family's coming from everywhere. And she's so proud, you know." Meghan's mother also appreciates the beneficial effect of the Special Olympics on her daughter:

Oh she's very, very, very proud. Of course she won the silver two years before, and this year she moved up to a little bit older class and more expectations, but she did get the bronze and we were very excited. And really and truthfully I think she seems to truly feel a sense of pride and satisfaction in that.

She then adds a specific expression of Meghan's sense of pride:

When they had them bring a memory object to a school activity this week...I would always expect her to say she wants to take Godzilla or a dinosaur because that's what she always takes. But this week she said, "I want to take my medal."...here [at therapeutic riding]...and in those things that she's doing, it's a good fit and it makes her feel proud. I'm seeing that, particularly when she asked to take the medal to school.

When asked to describe any changes she feels have resulted from participation in the therapeutic riding program, Jan's step-mother states:

I honestly think she's proud of herself...I have never seen the expression of pride on Jan's face. I've never seen it. And she did something remarkable one day and we were walking out of here, and I was like, "Jan, I am so proud of you." And she looked out at me out of the corner of her eyes with like a little smirk! Oh...it was like she felt that—it was the kind of look you get from a kid that feels like, "I deserve that. I'm proud of myself too." I'd never known her capable of that emotion and I saw it in her face... And that's the first thing that comes to my mind...For me it's the pride thing. For her to have pride in herself. That's huge.

Achievement.

Building a sense of capability and competency supports positive self-concept. Therapeutic riding provides an avenue for many of the children to experience success, which is noted by eleven family members, including Steve's mother, "The biggest benefit is that he's able to do this and...be proud of himself and...succeed at things." Instructor Mary has witnessed the change in attitude success brings to her students, "And their successes that come, they own those, too...they take full ownership of those, too, and they should." Dave's father reports his son was able to earn a merit badge in horsemanship in Boy Scouts. When asked which one thing was the most positive benefit his daughter, Jan, had gotten from the program, her father replies, "...I'm just trying to think of the right word...it's kind of a combination of accomplishment and confidence... Several parents, such as Brian's mother, took note of the limited opportunities their children typically have, "...achievements and how you arrive at...meeting a goal is something that has not come easily for him." Jan's step-mother further illustrates this viewpoint:

Honestly, I think Jan is getting a sense of accomplishment from this. She has been so sheltered and unable to do so many things that it's like...her chance at soccer or her chance at...some kind of sport. And she knows that she's doing something new and different and challenging...And she's able to do it...

After watching his daughter sit astride a horse for the first time, Jan's father tries to describe the full scope of her progress, "...and then this...victory today of actually getting on a live animal, well that started with...we didn't know if she'd ever even put the helmet on." Jan's instructor, Mary, fully appreciates her pupil's progress with the

miniature horse, “When we started, she wouldn’t even touch her. She couldn’t even be within 10 feet of her. And now she holds the rope and walks her independently, by herself.” Her step-mother has also observed the striking improvement in Jan’s level of accomplishment, “...for her to conquer the miniatures...she’s telling the miniature [horse] what to do now...she lets the miniature graze, she leads the miniature, she takes the miniature around the barrel, if that’s what Ms. Mary asks her to do.” Meghan’s grandmother expresses her sentiments regarding the opportunity to achieve:

...there’s not many 10 year olds that can get on a 16 hand horse and off by themselves and do what she’s doing...And how much is she going to be able to accomplish in life? And she’s able to do this...These are the high points in her life, because she’s not going to have no academic achievements. She’s not going to have any...athletic achievements. She’s not going to go to college...she might get a degree from school but it won’t be—this is her thing and she loves it.

According to his mother, Kerry has been encouraged to take part in sporting activities even if he feels limited in his capabilities:

...I think it’s like a, definitely a boost to his ego...because there’s so many things he can’t do...I have him in gymnastics because he’s...never really played any sports. He’s afraid to because he’s a perfectionist. He wants to get it right the first time and he knows he’s not good at a lot of things...and his therapists are really good about this too, because they’re like, “You know, Kerry, we don’t think you have to go out and be a...guy that plays every game...but...there might be a few games that you could play really well...You just might not be the Mr.

Athletic, but there might be something like horseback riding that you're really good at." He's really good at that, you know.

Although Robin eagerly competes in sporting activities at his school, his efforts often produce very disappointing results. His mother expresses her delight at his success in therapeutic riding:

I sometimes tell this story about how he used to say, "Mommy, I'm such a loser," because at school...no matter how hard he tried to win a race or...play basketball – any kind of athletic...competition at school, he always lost...and I thought how horrible for a child that, no matter how hard they try, they always come in last. And here...he's good at it. So I get all emotional, I'm sorry.

Self-esteem or sense of worth.

The construct of self-esteem may be defined as the self-evaluation of personal value or worth (Berk, 2004), and can be reflective of physical, academic, and social competencies. It is one of the most significant aspects of development as it strongly affects the degree of psychological adjustment, which in turn influences future patterns of behavior. Children with ASD may be particularly hindered from developing a sense of social worth due to the limitations characteristic of this condition. Six of the family members credited the therapeutic riding program with improvements in their children's self-esteem or sense of worth. When asked to choose one or two of the main benefits Meghan has gotten out of therapeutic riding, her grandmother responds, "How would you describe giving her... [a] sense of worth?...Because look at her out there...they have to know that they're doing something that everybody's proud of. They have to know." Kerry's mother states, "I think this has definitely been a boost to his ego, for sure.

Definitely.” While discussing the main benefits of the therapeutic riding program, Jan’s step-mother remarks, “Well let me put it this way. There has been nothing else I have ever seen that has made her feel as good about herself, I don’t think.” Steve’s mother recalls her excited son’s reaction to being told he had been selected to participate in the Special Olympics riding competition, “‘Mom...somebody thinks I can actually do something right.’ And I’m like, ‘Well yeah, Steve’...He said, ‘I guess maybe I am...good at something,’ and I’m like, ‘Yeah, you are good at something’his self esteem is not very good.” During the instructor focus group, Denise suggests that CKRH provides an accessible environment that can help foster these qualities:

...the benefits come from the self-esteem; the self-confidence that is derived from being able to do with the horse what they’re not necessarily ever given the opportunity. It’s not that they can’t do it other places, it’s that they’re not necessarily given the opportunity, I think, to do it other places.

Locus of control and empowerment.

Individuals with an internal locus of control believe they are responsible for their own accomplishments and tend to experience higher levels of achievement (Edelman & Mandle, 2002) than those who feel they are at the mercy of external factors beyond their control. Gaining control over the actions of the horse may contribute to the child’s sense of personal command, as emphasized by class instructors and volunteers and reported by seven family members, including Kerry’s mother, “Because...they’re on this big horse and they’re somewhat in control, which half the time they don’t feel like they’re in control of their own bodies. They’re in control of this horse,” and Bob’s mother, “He tells Socie which direction to go and so I guess they’ve worked some on how to operate

the reins and getting the horse to follow...so he can be in control..." During the instructor focus group, Denise comments on her eventual success in handling her instructional horse leading to a lessening fear of other animals for Jan:

And...this is a 19 year-old young lady who has never overcome a fear of other animals. They've [the family] tried different things; they wanted to have a pet in the home...and she's never overcome the fear of dogs, cats, and other animals. And now, after...seven, eight, nine, ten, this is ten weeks in. She's taking ownership of this miniature horse. Why is this horse different than the dogs they've tried for the past 15 years?

Annie's step-mother elaborates on this story:

...I would say that it's good for kids, young adults...different than soccer because you're dealing with another live creature and that gives you some sort of...a connection and a...kind of a hierarchy in the animal kingdom...you are a homosapien...you're over this creature and you can have dominion or whatever the word is...And so that's really good for her...since she's been...friends with our cat, Munchkin...he was sitting in a chair one day and she wanted him to move and I said, "Well, give him a little nudge, out of the chair...just put your hand on him"...so I took her hand and showed her how to do it. Well...for several visits after that, she wanted to know if it would be alright to nudge Munchkin off the chair, off the ottoman. She liked being able...[to] have charge of what's going on. So I think that's huge. And somebody in her world, to be able to have that some way.

Class volunteers such as Shirley readily note in their focus group the potential value gained from developing effective riding skills, “Well, any time you can get a kid up on a horse and let him think he’s in control of a situation, where a lot of times he’s just completely out of control...it gives him a lot of support.” Later in the group discussion, Sherry remarks, “I think something Shirley said earlier, though, the sense of being in control. Some of them have the only time in their whole day when they had something that they’re telling [what to do]...” In the second volunteer focus group, Perry expresses the same viewpoint and further links locus of control with self-esteem, “I mean...they’re sitting in a world up above the world now...looking down at everybody else, and they feel like maybe they have some control over their lives that they don’t have in their normal day to day existence, so I really think it gives them self esteem...” When asked why he thought therapeutic riding was one of the children’s favorite interventions, volunteer Perry credits the presence of the animals, “I think the horses. I mean, and there again...it gives them control. Possibly some of their other therapies don’t.” Horseback riding instructors for all populations commonly stress the need to assume a commanding presence over the animal in order to control it safely and successfully, as discussed in the instructor focus group:

Mary: And they know that;...they’re in control...when my guys are up there, I’ll say, “Who’s in charge?” But...you can tell it’s been a long time since someone said that to them. And they’re like “Oh, gosh, I...I..I am!” [And I respond] “That’s right! You are – you’re in charge!” And...once they realize that, they much more take ownership of their horse, and their team, and their task.

Margi: Can you explain “the team”?

Mary: The team. Their leader, and their sidewalkers. All the volunteers, and I emphasize that with them...“This is *your* team, this is your team...you’re the boss.” And I’ll say, “Who’s the boss?” And you can tell, the look on their face, and they’re thinking, “Does she want me to say *she’s* the boss??”...And then, all of the sudden, it’s like, “Well, gosh, I’m the one driving this bus here. I’m the one who...can make it happen.”

While the term *empowerment* is not commonly included as a milestone in child development, it is often used to describe a process that equips or supplies the individual with an ability to gain a sense of control over his or her life; therefore, it is logical to link this concept with that of development of an internal locus of control. Mary illustrates in detail how rare it is for a child with ASD to exert much direct control over the aspects of their daily lives:

Oh, yeah, yeah...we’ve all said this – that...the horse is very empowering. When you put yourself in the shoes of that individual, especially children, they’d had stuff done to them all their lives. They’ve been poked, and they’ve been prodded, and they’ve had all these decisions made for them. “Well, he’s gonna take this medicine, and he’s gonna go [here]...he’s gonna do this, and he’s gonna take...speech therapy; and he’s gotta go to the orthopedic thing, and you’re gonna be in this class, and you *will* wear this”...and they have all these decisions made about ‘em, and a lot of ‘em are life-directing decisions, and they have no control over that. And you put ‘em on a 1200-pound animal and go, “O.K., you’re the boss...you’re the boss.” Hugely empowering...

Executive Director Pat describes the initial ineffective attempts of a child to successfully lead a miniature horse, which often results in loose horses being recaptured by staff and volunteers until the child learns to develop the attitude and proper technique to control the animal:

And so sometimes...they are oblivious to the fact that they have just turned a horse loose. Just sort of wondering around...not tuned in. But then over time...you'll look out there and you'll see...the same children...walking with the horse, and they're clearly in control of their horse...it's a skill that they've learned. They've learned to control themselves a little bit. They've learned how to use their control to affect that horse...or what they can do to...really improve the dynamics of having some sense of control not only of themselves, but of their horse. I think that's a really good feeling for children...“Ok, I now know how to do this. So once I've got this, if I can access what I know about this again...I might be leading this horse and I might be able to make it stop and go and...hang on to it...” So I think it gives a real sense of empowerment...to children, and makes a focus outside of themselves.

Jan's step-mother links another related concept previously discussed in this section, “So I think Jan has a sense of empowerment...and that gives you confidence.” Gary's mother observes the transference of such traits honed in therapeutic riding to other novel situations, “...he normally wouldn't like things that are outside of his routine or what he's accustomed to, but being able to do the riding I think, it interests him enough to try something different outside of his comfort zone.” Rick's father also remarks on his son's willingness to try new things in other places, and his mother agrees, “Yeah, and

now...he's able to play at Kids Place and do all that climbing and stuff, and it used to be that he just stayed in the ball pit because he couldn't do anything else."

Self-care skills in daily activities.

The willingness to assume self-care in activities of daily living, such as personal grooming and dressing oneself, contributes to positive self-concept and is an important aspect of normal toddler and early childhood development, but it is often disregarded by children with ASD. Executive Director Pat discusses the value of skills the child is motivated to perform during therapeutic riding lessons that can often be transferred to daily life:

...for a lot of the riders, the autistic population as well, it's about a skill that you can take with you...and for somebody that...learns to focus on buckling a helmet...they can buckle their seat belt...and if they can learn to pick up a brush and brush the horse...autistic children have, I think, a real thing against personal care, a lot of times. They don't want to clean themselves, they don't want to brush their hair, they don't want to brush their teeth...if you get them into the grooming of the horse and the brushing of that and they feel some motivation to clean and to brush...we've had parents say that they're brushing their teeth and combing their hair at home. Because the parents can then say [to the children]...“just like you do to...the horse at CKRH...go do that.” It's the motivation and the idea of...devoting some time to the care of something...kind of transfer to devoting time to their care. And those [are the] kinds of life skills that you see.

Instructor Mary recounts one parent of a client with ASD describing the utilization of this approach in asking her daughter to put away the pieces of a game she had been working on:

[The mother] says...“I can equate that [the lesson]...and I can say... “You do your horse activity, and this is all part of the horse activity...you do this game, and putting the game away is all part of it...just like when you put away your saddle and your tack and stuff.”...It’s life skills...Complete it. Do your task and then complete it.

While speaking to the strong motivational factor present, Robin’s mother readily recognizes the contribution to self-care skills as one of the most beneficial aspects of the therapeutic riding program:

And then the most amazing thing was that he—I get all emotional when I talk about this because having an OT background and getting him an OT since he was an infant...of course we’ve been working on all these self-care skills because with autism, they usually are just not interested, not motivated to participate in self-care... Well...they allowed him to participate in tacking and grooming. So I started noticing that...he was having to buckle and unbuckle that saddle. And they just expected him to do it. Where...with OT we’re trying to teach him how to buckle and he was not motivated to do it at all. So he starts learning to buckle and unbuckle because he really wanted to help with the saddling of his horse and hanging up the saddle. And the next thing I know, he’s buckling his own buckle. And he had never done that before...And just that motivation of, “I want to participate in tack and groom, I want to help my horse, I want to be involved with

my horse.” And he was proud of it. And I started seeing him do all these self-care things. So he was brushing the horse and helping with bathing. Well the next thing I know, he’s at home all day looking in the mirror, brushing his own hair...He had never done that before. So I’m like, “Oh my gosh.” All these years of OT...it was constantly helping with grooming and self care, and he was not interested. And all of a sudden, we saw this carryover. That...it came natural because he learned it here, enjoyed doing it here, was motivated to do it here. And then the next thing I know, he’s doing it independently. I just couldn’t believe it. And he just one day just started doing himself. I didn’t even ask him to brush his hair, and there he was doing it. And I thought “I cannot believe it.” And he started brushing his teeth and he started wanting to participate in bathing. I thought, “I know...why he’s doing this.” And so after I saw that I thought, “Oh my gosh, everybody needs to get into this.”...because...this was the most powerful motivator he had in his life, to get him to participate in self-care.

Emotional self-regulation.

Emotional self-control involves the ability to regulate emotions and inappropriate, impulsive reactions to stimuli in the environment (Berk, 2004). Such self-regulation typically begins to appear after 18 months of age and continues to develop into early childhood, and helps to prepare the child for the acquisition of pro-social behaviors (Murray et al, 2009). For the average child with ASD who may readily exhibit hypersensitivity to sensory stimuli, sudden mood changes, temper tantrums, and a wide variety of inappropriate behaviors, emotional control is often a challenge at any age.

Control of emotion and overcoming fear.

With the assistance and reinforcement of caregivers, toddlers and younger children learn to judge through repetitive experience whether to approach or retreat in a number of situations (Berk, 2004), according to the perceived level of threat to their safety. Irrational fears are not uncommon in young children, but they must learn to effectively cope with them, especially if this fear is preventing them from accomplishing desirable goals. Family members of four of the children in this study reported some level of fear that they had to overcome in order to participate in therapeutic riding. Instructors commonly utilize miniature horses in a gradual desensitization approach to help bridge the gap to a larger riding animal for those clients who are fearful, as described by volunteer Shirley during the first volunteer focus group, "...I know we've had students out here that they just started fooling with...the minis [miniature horses]. Let them look at the minis and...worked their way up...just get them used to the little ones and then coax them on up." The enjoyment that comes from riding can be a powerful counterbalance to any present fears. When asked if her son Kerry had always enjoyed riding the horses, his mother responds, "From the beginning...he was scared of horses, but that was the interesting part...once he got up and figured out, 'Oh, no no, I like this. This is great'...then he wasn't scared of horses at all anymore." Jan's initial fears are mentioned by her father, "...when we first came, for like the evaluation with Denise, she didn't want to walk through the door of the barn." For Meghan, mounting and dismounting provided the most fearful challenge, as her mother explains when asked if she had initially been afraid to ride, "...getting on and off. Not while she's on. But that movement from sitting there to the ground just was a big fright...it was very frightening

at first.” As a parent who harbors some fear for the horses, Robin’s mother admires her son’s willingness to ride:

And just to...be brave enough to do it, because...sometimes when I’m standing next to the horse, I feel so intimidated and I think, “I don’t know if I could get up there and do it.” Because I thought, “Well maybe I should try to be a sidewalker,” but I don’t think I could because I would be afraid. And I get to leave my little three and a half foot tall boy that does this.

John’s aunt describes a dramatic turnaround in how he relates to animals in general since his gradual introduction to the CKRH horses:

And so two or three years ago, before we started, he wouldn’t touch any animal...He would rather look at a tree than an animal, and most kids want to look at the animal...And when he met Socie, he was a little intimidated by the size...and he would kind of scream...a little bit when they started to put him on because he was intimidated...But once they got him on Socie and started riding, he was fine. But...now they’ve got to the point where he’ll walk up the mounting block himself and he’ll stand there calmly and he actually raises his leg to get on Socie. And, so it’s been a wonderful thing...It has been so good for him, and not only just here, in all areas of his life...We have...seen such a big difference in...how he relates to animals...since he’s been riding Socie, now he actually looks at cats and dogs and...other horses. He went up to the fence just today and started looking at this horse that he had never been up close to. And he was very very close to it...that’s a big...difference from how he first started out...so we were really pleased with that...And so now when he looks at that cat

or dog and he even laughs at them sometimes, he even ran over and touched the tail of a cat, I mean when I see that I know it's from Socie. It's from his involvement with an animal.

Less inappropriate behavior.

The colloquial term *meltdown* is frequently used to describe the negative behaviors often displayed by children with ASD, but it is a commonly held belief that contact with the horse in the therapeutic setting is responsible for a reduction in such behaviors. Eight family members and several staff members and instructors note the children's apparent ability to exert more control over negative behaviors during therapeutic riding lessons. Meghan's mother describes her daughter's inappropriate behaviors and outbursts often displayed during other types of therapy sessions but absent during her riding classes, "It's like she holds it together until she gets off the horse and she gets with us and it's like, 'Rar, rar, rar, rar.'" Kerry's mother states simply, "He keeps it together here." Jerry's mother observes positive changes in her son and offers an explanation, "...behaviorally, Jerry has become a much calmer person. He was more aggressive...and I almost think it might be more the size of the horse that has knocked him down a level." When asked how her son responds to his instructors, Jerry's mother provides a testament to the soothing effect of the riding lessons:

...I'd say that he definitely follows more direction now. He, as far as I've ever seen, has never been disrespectful or not, like, thrown a fit or had a meltdown or anything...which is very common...I've never seen him have anything like that... The only thing I think that my husband and I can actually pinpoint is Ethan's behavior...is a lot calmer in general...and when a session is not in, he becomes

very aggressive...He's a very loving, very sweet child, and not purposefully would ever hurt anybody, but he is so aggressive that he is a liability, and he is calmer during...[the eight week sessions]...We'll take all the calm we can get...not that it lasts for the entire week...I mean we still do...therapeutic massage and stuff like that, but we won't have to do anything today... or probably this weekend because he's just got his fill.

When asked for specific examples of changes or improvements in their clients, the instructor focus group provides input on Rick:

Barb: ...with some it's self-control...like Rick, who used to throw himself off the horse! I mean, if you stopped for a nanosecond, you had to physically hold him on! (Group laughter) Because he was getting off...

Deb: Wow, amazing.

Alan: Gone!

Mary: And now, he doesn't want to get off and quit. He wants to know, "What else can we do?"

Later in the discussion, Denise provides more details on a potential cause of Rick's frustrations and the unified team approach that was employed to help satisfy his need for a routine while maintaining his mounted position including, temporarily, the use of his father as his sidewalker:

It was the fall of 2007...Rick...[was] going through puberty. Hormones are kicking in, and...for the past six months or so they had had a lot of aggression issues... He doesn't know how to process and handle...a lot of this, and he was doing a lot of bouncing on the horse, and we actually had to dismount, which, as a

result, I got a *lot* of aggression...there again, that amount of change at that point, he was not able to—and that’s when we stepped back and we said, “O.K. We’re gonna document a plan, we’re gonna write it down, we’re gonna follow a structure, and...he progressed extremely [well]—that’s when he started learning to steer...

Instructor Deb worked with Rick in a later riding session and can appreciate his improvement over time:

Deb: We have a student, and Barb says she’s worked with him as well, and he has just improved dramatically...he’s a student that...speaks repetitively to himself; he needs to jump up and down...flapping; these types of...behavioral issues...he can now come to a lesson, and when I tell him, “O.K., we’re going to ride,” he can get on the mounting block and *stand* without doing any of these behaviors, get on his horse...when I first started teaching him, he would pop up and down in the saddle. He no longer does that.

Barb: We couldn’t keep him on! (Group laughter) He’d just decide to get off. We’d be on a trail ride or something, and he’d just decide to get off.

Deb: Oh, that’s amazing.

Denise: See, there’s some improvements over time...

During the first volunteer focus group, Shirley describes the use of the horse as a motivator to modify Doug’s inappropriate behaviors:

Shirley: ...when Doug first started riding, he was screaming so...his mother just took me over to the side after class one day and said...”Tell him ‘Nice voice or no screaming,’” and it got to the point he went a couple sessions he wouldn’t quit

screaming so he had to get off the horse...we just had to take him off because it was disruptive to everybody and he wasn't doing what he was asked and...

Margi: ...how did he react to being taken off the horse?

Shirley: He didn't like it, but...

Margi: ...do you think he figured out he couldn't scream on the horse then?

Shirley: Uh huh, I think eventually, yeah. But it took a while.

In the instructor focus group, Denise further explains the staff's preplanned, structured approach to handling Doug's outbursts during a class:

Denise: ...Doug had a behavioral plan and it was for volunteers—one, say his name. “Doug, do this”...very short instructions, and then count. “One, two”—and if by three it is not been completed, or it is not stopped [he is taken off the horse]...In particular it was screaming for him...But the important thing was, this is what teachers were using, this is what mom was using...It was very consistent...But [if he was dismounted] we didn't end the lesson. It's not dismount and go home, it's...redirect, come back. But what he wanted was the movement of the horse. So he wanted to get back on...so that's kind of an example of...using that method that he consistently knew; I never had to dismount him.

When the topic of inappropriate behavior is raised, one student in particular, Bob, stands out for staff members, instructors, volunteers, and family members. Executive Director Pat describes the first day of his client evaluation:

...I will tell you when we did that evaluation that day, knowing that this child had a history...I was out with [Denise]...as another staff person being present at his

evaluation....[I] watched her...repeatedly get nailed in the head by this child and I found it pretty doggone shocking when...the last thing she said to this mother was, "I think we can help him."...at that point I was thinking, "Hm, I'll have to look at my insurance again."

As Bob's lessons progressed, Pat explains how the instructors worked to develop a coping strategy for his aggression toward his mount, Socie, while also keeping a record of the number of infractions he committed during each lesson:

...you have this range of inappropriate behaviors that are both verbal and physical. And hitting, biting, kicking...plus inappropriate language...And so you take...an adorable five year-old and stick him up on the horse while you're trying to keep everybody safe and...not be injured...by this cute child and when he gets on the horse, he's just riding and hitting the horse in the mane and saying bad words to the horse and just over time watching the instructor, never say, "No," never say, "We don't talk like that," no n-words in the conversation, just answering back, "Good Socie...nice Socie, pet Socie," and teaching those things. So gradually we've started keeping an actual physical list of the number of times he said negative things on the horse and a list of negative things that he did on the horse, and watching the list flip into positive things said to the horse...scratching rubbing, petting instead of hitting, biting, thomping....That was very measurable and there was a list for that...that was kept during his lesson. Counting the number of inappropriate responses in a lesson and watching that go down and being replaced with more appropriate behaviors...But...it did actually shock me because he was so violent, but at the end...he actually started to ride in a lesson

with another individual. He had to ride in a staff only lesson in case somebody got hurt, it was one of us. And it sort of graduated to a volunteer-assisted lesson and then...we found...that he could ride with another child in the same lesson and—although... he still would maintain the capabilities to lose it and go off...with a change, with something out of kilter...over time it was a definite progression there that was heart warming and...good to see, and as you said, measurable.

The instructors also recounted the behavioral modification process that took place during Bob's lessons:

Mary: ...when we started, it was my understanding that he was hitting Socie 60 times a lesson.

Denise: At least.

Mary: At least – maybe a hundred?? You know, by the time I got him...

Denise: 103 was the first count, if I remember correctly.

Barb: (Incredulously) *Hitting him??*

Denise: *Appropriate touch* [from the child's viewpoint] was: "Hit Socie. Hit Socie. Hit Socie."

Mary: And he would say that!

Denise: Now his hit was not mean-spirited; he was not angry. His way of showing affection was *hit*." (hand smacking noises)...his *loving way of affection* was (repeated smacking noise)...103 times in 30 minutes!!

Mary: ...the last lesson I did with him, he did it once. And we have redirected that to – pet session; gentle session; tickle session; rub session. And...now, he

doesn't have time to think of a hit session, 'cause we're doing *way* too many things...And we're doing rings; and we've got stuffed animals to ride; and we're putting 'em in mailboxes and we're takin' 'em out; and we're doin' round-the-worlds...and I knew that... the lessons had been...very sequenced, and very much the same...so he knew what to expect. And I thought "Hmm, I don't know how this round-the-world's gonna go, but I know that he won't be thinking about 'Hit Socie.'

Lastly, Executive Director Pat offers her rationale for the riding team's success with Bob:

I think...he learned...watching the way that he was managed off the horse when he first came to us was...a restraint hold from your rear by his mother who took him down to the ground and then put him in a hug from the back and held tight through the kicking and biting and tried to ignore kind of what was happening and was constantly saying, "No, no, no,"...and all of a sudden...he's on a horse. So he has to maintain his own body...up there and then...instead of all the restraint and all the language and all the yelling, it really became...soft and gentle and good words and...I think that was about the best explanation that I've heard...You have to sit on that horse. You have to be responsible and you're kind of up there...whereas if you're on the ground...you can sit and lay down and roll around and somebody can come and grab you and hold you...but on a horse...you can sit up there and scream for a while and somebody next to you is just going to say, "Pet Socie. Nice Socie. Kiss Socie"...And after a while it's those things that he chose to do.

Calming effect.

Although improvement in individuals is often noted over a range of time, family members of six children observe a more immediate calming effect when their child begins the riding lesson. When asked about any changes she sees in her son from therapeutic riding, Bob's mother replies:

...the biggest thing is his demeanor. His personality, and he's happy and he enjoys it. He's...calmer after it's done...we've seen some really good things come out of it...Bob can be having a really rotten day. Rotten day being physically aggressive or just off the charts. And he gets on the horse and we go home and it's like a whole new child...he loves it. We see where he's had a really horrible day, he gets off the horse and goes home and it's just like a typical, typical kid, even keel, focused, does what he needs to do, and happy...we can tell when he's not had Socie...we see a difference...we do see the temperament.

Steve's mother is also grateful for the tranquilizing effects of riding class:

As far as the benefits, it really helps Steve mentally...the benefit is that it's helping him mentally...the biggest thing that I see is that it is, it's calming. It's something he can look forward to...like tonight when I brought him he was very upset... He'd had a very bad day...a couple other nights we've come and he's had very bad days and whenever he has bad days it takes him forever to calm back down. But I've always been able to get him to come...a lot of times he won't get in the car and go anywhere when he's frustrated...although tonight he really said he didn't want to come but...I knew that once he came...it would help calm him...it's very calming to him to ride the horses.

Steve's mother readily recommends this type of intervention for children with ASD, feeling that the movement of the horse is a possible key to the mood regulation phenomenon:

...I would tell them definitely, it's a program...worthwhile for the kids. Again, it goes back to that emotional status of an autistic child is...so calming...the riding of the horse. The movement, or whatever it is...has a very calming effect on Steve, anyway...I think a lot of the...autistic kids have things that they do to calm. Like when Steve gets upset, he'll rock. You know, he likes that movement. That helps him calm. And...so the movement of the horse...maybe mimics...his self-stimulating...so I believe that's probably what it is that helps calm.

During the first volunteer focus group, changes for the better were also noted once the clients arrive at the riding lesson:

Shirley: Well sometimes we get calls...that they're acting too bad at home to get them in the car...we've had a few...like that. But once they get here...

Alex.: If that's the one I'm thinking about, that's not that he doesn't want to be here, it's just that they don't want to get in the car.

Shirley: Yeah. Or they just had such a bad day it's just not worth it.

Sherry: Yeah, a couple times I've seen kids that were having a bad day and...it was a little difficult convincing them to get on. But when they did they were fine.

They were tired, yeah. Some of them fall asleep.

Doug experiences frequent emotional outbursts during his lessons, but they have decreased in number over time, which his mother also credits to the presence of the horse:

...that's why this program is so good for him is because...he has less oral motor issues when he's able to ride on a consistent basis. And...like tonight...he was—kind of keyed up, but...he's been doing so much better in that realm and...so we'll take the occasional...rough night, but there's just... something inherently wonderful about a horse and a horse's ability to help children, and I don't know quite what that is, but it's just a calming...when you can put a child on...and it's something about their movement or something...just in their nature that is just...relaxing, calming...and therapeutic.

John's aunt notices a similar effect even when he was just walking next to the miniature horse in his lesson, "...one of the ladies led the miniature horse...and... the other one would hold John's hand...while the horse was walking. And he would watch the...little miniature horse's feet walk...And he was real...happy and pleased and more relaxed."

Wayne's mother describes her son's immediate response to sitting atop his horse:

...[It's] something that he can...enjoy and...it really does help him relax because he comes away and he just kind of sinks into the horse...He can be real hyper and he gets on the horse and...you can physically see him...just kind of melt. It's really a neat, neat sight just to see because you know how hyper he's been all—like today he was really, really, really hyper...it's been a great experience for him...just because of how relaxed he gets...That is the biggest bonus for Wayne.

The first volunteer focus group members also noted this common effect in many of their riders, and also credits the calming response to the movement of the horse:

Shirley: And... some of them will come in, like really making a lot of noise, and then they get up there [on the horse] and they settle in...

Sherry: Yeah, the ones that kind of have the hyperactive end of the spectrum will get into that.

Shirley: To the motion?

Sherry: Yeah, and seem to kind of level out. At least the ones I work with.

Margi: ...I've heard this thing about the motion has come up many times in talking to the parents. What are your thoughts on that?

Alex: ...not necessarily with Dave because he's the one that I deal with that's autistic...he'll sometimes just have good nights and bad nights, where he's more attentive to what he's doing or what he's supposed to be doing. But as far as some of the other ones...yeah I've seen Neil fall asleep...on a horse. And it just puts him to sleep. Just the motion back and forth, and...

Shirley: I think it calms Doug down a lot...I've worked a lot with him in the past and he'd just be having a horrible night and then all of a sudden he'd kind of...calm down...

Sherry: I think...some of the ones make a lot of repetitive things too. That seems to cut out. And one little guy...goes off in a line of jabber...And that seems to have been...not as prevalent. It's just kind of falling by the wayside, and very attentive to [saying] "Whoa" and "Walk on."

Transitions.

Learning to deal effectively with transitions, or changes in routine, is another important facet in the development of self-control, and one that is typically very challenging for a child with ASD. Bob's mother is one of five family members who have experienced difficulty with their children in dealing with alterations from the normal

routine. She describes her son's distress that was triggered on various occasions by different family members bringing him to class, a temporary change in instructors, and a modification to the normal entrance to the Kentucky Horse Park that was necessitated by construction projects.

Routine is much better...We like routine, we don't like a lot of changes...I had surgery the end of May...which meant during that time either my husband [and] my mother, I think that's all that brought him...So we had to do lots of prepping over that...we had to make sure he was going to have Ms. Mary and that...everything was going to be normal otherwise...we had to talk him through a whole lot of the driving when we were having to weasel through—when [the Kentucky Horse Park grounds] were under construction. The roads and stuff...because he knew we came in, we turned to the left and we went and found Socie. Well, we were going to the right...Thank heavens they had the CKRH sign...It was like, "Look Bob, there's the sign. Look Bob, watch for the sign. We're on our way." So he handled that...but now not too long ago...my husband brought him. Denise was part of the session. And so, they had a rough time. So that routine and that consistency was missing.

Gary's mother values the opportunity for her son to become more comfortable in new situations, "...he normally wouldn't like things that are outside of his routine or what he's accustomed to, but being able to do the riding, I think it interests him enough to try something different outside of his comfort zone." Riders are carefully matched to appropriate mounts for their lessons and every effort is made to maintain that partnership, but various factors can require adjustment to a new animal. During the second volunteer

focus group, Perry and Jo Ann discussed changes in horses that are sometimes encountered in the lessons:

Perry: I think it's a plus...that they switch...because a lot of these kids, they do get in such a routine that anything that deviates from that routine, they really flip out over it, so I think...by changing horses periodically, and maybe even changing...leaders and sidewalkers periodically might not be a bad thing. To let them see that...

Jo Ann: Change is ok.

Perry: ...there can be deviation and it's not a bad thing.

Wayne's mother was pleasantly surprised to find how well he adapted to such changes during his riding program:

He's been on Red, he's been on Goofed Off, he's been on...Annie. He rode Annie for the longest. He rode Chico, he rode DeeDee...So that's what, five horses?...In six sessions...And that's surprising...Because for him, transitions, and something to go away from the norm is really usually really hard for him, and [the] first session he got on a different horse this time and he was just like, "O.K....let's go."

Rick is quite dependent on a consistent routine in order to maintain emotional stability, but he has also learned to successfully deal with unexpected transitions in the riding program. Instructors in the focus group gave an example of this capability and also described the team strategy that allows for his flexibility.

Deb: The change issue- like you said he wouldn't have been able to have dealt with that change – just...two weeks ago we had some issues with our scheduling

with our volunteers, and I actually had three different sidewalker volunteers come into the ring during his one hour lesson...I was really upset about it, but...we got it resolved, but...he was fine! He was fine, and the third and final sidewalker was the girl that was supposed to be in there, and I said, "Do you remember Piper? You know, you had her last week?" "Oh, yeah, I remember her."

Margi: It doesn't matter!

Barb: "If you're not bothered, I'm not bothered!" Sounds like his focus has switched a little bit from...needing everything the same to...he's got his horse. (Group agreement) Does he deal well with changes in horses, or have you had that come up at all?

Denise: He does fine with the changes in horses. What seems to be really important, if you can keep the big picture of CKRH the same...He can adapt to the change in people, he can adapt to the change in horses, but there is a certain structure, from the time he gets out of the car...the first place he goes is to the bathroom. He gets out of the car, he goes to the bathroom, he comes to the water, he gets the water. One, two, three, four--and...he goes to the table, from the table to the mounting block. As long as you can keep *that* structure, then everything seems to flow really well. Now when it breaks down is if you think you're gonna skip the step of getting the water; or if you're gonna go sit at a different table; that totally, totally throws him.

Initiative.

Erikson's concept of initiative appears in the early childhood years and involves the constructive channeling of energies into learning, planning, assertiveness, increased

dependability, and action-oriented activities (Murray et al., 2009). Jan's remarkable journey from fearful reluctance to enter the barn to willing and capable involvement is noted by her instructor as well as her parents. During the focus group, instructor Mary illustrates the progress Jan has made:

I wrote in my notes – she has taken command of this miniature. She's taken ownership, and she's taken command...I remember the first time when she was walking by herself, had the rope, and Merrylegs stopped to eat...It never occurred to her that she [the horse]wasn't gonna walk right along...there beside her...because when I was leading, she always walked along beside us! And I said, "Well, she's not supposed to eat. Use your muscles, tell her to 'Walk on,' give her a tug, and she went "Yaa," gave her a tug, walked on, and off we went! And from that moment on, if she tries to eat, she will give her a tug, tell her to "Walk on," and...she'll maneuver out of the grass into the track, into the sand, so she's not eating...this last lesson, we walked out of the barn, we walked into the arena. I turned to latch the gate and she was *gone* with that mini. She wasn't waiting on *me*, she knew exactly what she was doing; this was her mini.

Moral development and responsibility.

As soon as early childhood, children begin to learn morally-relevant behaviors through modeling and positive reinforcement (Berk, 2004), and by middle childhood should exhibit basic traits of independence, trustworthiness, and responsibility. When asked how she has viewed her son's improved riding skills and maturation over time, Dave's mother remarks, "Well I think to be conscious...of just animal care and animal rights and... 'We treat animals nicely,' ...those kind of things are always good for

anybody.” Rick’s father senses that his son’s attitude toward his lesson horse is maturing:

And...within the past year, they’ve also incorporated some tacking and horse care...with it, so he’s now getting the sense that...it’s not like your car...It’s not something where you just sit down and it goes...you have to maintain it and...there’s another being there. There’s another animal...that needs care as well...And some responsibility involved with it so, so it’s been wonderful.

Industry.

Erikson’s construct of industry includes the pursuit of meaningful achievement (Berk, 2004) through perseverance, problem-solving, and task mastery (Murray et al., 2009). Failure to realize this goal may result in feelings of inferiority, defeatism, and a reluctance to attempt further pursuits. Related concepts not yet discussed include challenge, task mastery, and participation.

Challenge.

Potentially satisfying goals must be viewed as attainable but also challenging enough to render their accomplishment rewarding. One of four family members who spoke to this construct, Jan’s step-mother describes, “She has been so sheltered and unable to do so many things that it’s like...her chance at soccer or her chance at...some kind of sport. And she knows that she’s doing something new and different and challenging.” Brian’s mother attributes his progress to his placement in appropriate classes of increasing difficulty:

...part of that has been in making sure he’s in a class that’s...challenging him and slightly stretching him without not trying to overwhelm him, and so that’s been

some of his best moments, and then...encouraging him to participate in...some of the other...programs that's available.

Brian has participated in the Special Olympic competition held on the grounds of the Kentucky Horse Park but in a less familiar location than CKRH, as his mother explains, "It was held here...at the Horse Park, but it was over...in the bigger arena, yeah. And that was a big deal." Kerry's mother believes that he has progressed as he has learned to successfully control horses that require more skill, "...he gets better each time, so I think they want to challenge him and give him a horse that will challenge him a little more."

Gary's mother recommends therapeutic riding to other parents because:

...I think it's good for any autistic child...because [of] the sensory sensitivities and that kind of thing they may be less likely to try new things or be in new situations, so something that motivates—if they're motivated by it...that's very good for them to be in a new place...[to] experience new movements and new smells and new people and be challenged to do things beyond their comfort zone.

Task mastery.

CKRH instructor lesson plans state specific skill objectives and client evaluation forms record the degree of personal goal attainment for each lesson. Four family members reported their children's growth in the area of task mastery. While noting that finishing tasks is a typical problem for her, Jan's father mimics the riding lesson instructor's directions that promote this, "Jan, I need you to touch the horse,' or 'We're going to brush this horse 10 times.' And she might protest, but she'll do it...which I think is just wonderful; task completion, whatever the right word is." Rick's father did

not initially emphasize skill attainment to his son, allowing him to ride purely for enjoyment, but after the first five years, he told him:

...Rick, you're getting like me. You're a little lazy...so...we're going to push this and...you're going to learn some skills...So...we set the goal of, or at least I did for him...of the Special Olympics...which he'll be riding in next week...and he's earned the right...Ms. Denise said...this isn't a *gimme*... he has to work towards it...and I've...conveyed to him that he has to work and he's done wonderfully...especially in the last year; he's really...moved beyond just riding to really trying to learn the skills and whoas and stops and starts and rights and lefts and leading and steering the horse...he's really blossomed his skill sets...

Parents appreciate that the classes are structured with individual client progress as the goal, as described by Dave's father, "...he's learned to...tighten up the saddle and adjust the stirrups and he can get on...by himself...And...he's ridden by himself without a lead..." Dave's mother adds:

...I think this...helps build his skills... because they practice a lot of stopping and starting and it seems like these last two or three sessions...they're into the...turning and the control of the horse so that's improved over the years. Because...when they start out down here, these kids just have the...[side]walker so they don't really have the skills. I think...the skill building part of the program has increased, and that's always good for anybody to have to think about what to do, so I think that's good for him to have to process...what he needs to do to control the horse.

Kerry's mother has been very impressed with his rapid improvement and appreciates the staff's concern for continued advancement:

...he was standing in a jockey stance, going around the ring, and the rest of them were...barely trying to sit up still, and there he goes riding by. And he'd stop and give us a thumbs-up as he was standing up. I was like, "Oh, look at him"...then he blew me kisses and said, "I love you Mom." So I was like, "Oh, look at him go!" But they said...when he gets a little bored in here, we're going to move him up, so I thought, "O.K., they're giving him more responsibilities; they're teaching him more." He's obviously very confident now on the horse, and he's learning more skills. So I think he's actually going to become a rider now, rather than just...doing...mostly I think therapeutic skills.

The motivation for clients to be promoted to instructor Alan's class, where the students typically ride without as many volunteers to assist them, was mentioned often during the instructor focus group. Here they discuss the difference between Alan's riders and the non-independent student riders:

Mary: I think your guys, too...aspire to...higher riding levels...

Margi: Where you *don't* have to have all those people around you!

Mary: Right, and...they really want to master that skill and bump to the next skill.

Margi: Do you feel the kids are aware that Alan's class over here rides independently, is that something...

Mary: *Oh, yes!*

Denise: Oh, yeah! (Group laughter)

Mary: “When can I be in Alan’s class??”

Margi: Ah, that’s it, it’s a little carrot out there...

Mary: Exactly, exactly

Steve’s mother has witnessed the progress her son has made since moving into one of Alan’s more independent riding classes, “So...Steve has thrived on that.”

Participation.

Participation in activities and organizations that are meaningful to the individual is an important building block for many constructs such as achievement, task mastery, self-concept, and identity formation. Children with ASD classically exhibit little interest or willingness to take part in such activities and therefore miss out on opportunities that are commonly available to their peers, as indicated by nine family members who appreciate the significance of this activity to their children. When asked to describe the single most important benefit she has received from the therapeutic riding program, Jan’s father replies:

...I see so many good things...but...just the participation...for her to be learning this skill...and to be participating, right...so that’s the best I can do in one word...And I think...one of my struggles, emotionally, had always been that she has enough structure and programming in her life outside of school. So just having an event every week to look forward to...I mean it’s one more thing to make her life that much more full.

Dave’s mother feels the most obvious benefit for her son is, “I think just a structured activity you have to look forward to.” Rick’s father’s initial main objective for his son to participate at CKRH has been fulfilled:

My expectation at the beginning was basically an outlet for Rick to do something that he just enjoyed...that he'd look forward to... something that would always make him happy because he always was...and always is still...That he actually looked forward to it, helped us with his planning of time and days.

Jim's mother feels therapeutic riding has become a staple of his weekly routine:

...the one thing that we've never had an issue is with him coming out here. If he doesn't get to come, he's really disappointed...and if he tells me I'm sick, I know I better get him to the doctor. I better get him in and get him here fast, if he's not interested in coming here. I mean, this has been the one constant that he's always looked forward to...very little has kept him off the horse.

Despite suffering an injury in a fall from his lesson horse, Doug's mother felt he was upset that he had to miss some lessons:

And...in his own way, you could tell he really missed it...of course [his older brother] Brian was still very involved in riding and we came out and I can't remember if he [Doug] was saying, "Horse, horse," or, "Ride, ride," but...you could tell he missed it...

Meghan's grandmother notes the importance of having a special interest or hobby:

...it's like a child that can learn music...it's something you give them that no one can ever take from them. Well she's not going to be able to play music. But she's going to be able to do this...I can't imagine her not having it. I think it would just be devastating. I think if she couldn't I think she'd be devastated. I really do.

Steve has previously taken part in Special Olympic swimming competition, but will be participating for the first time in the equestrian division of that event later in the year.

Although he is looking forward to the event, he is concerned about being adequately prepared for the show ring. His mother has implored him not to worry so much because “it doesn’t matter, just go have fun...it’s just the thing that you get to participate. That’s what’s so special about it. So don’t worry about how you do. Just go and have fun...”

Another related CKRH event that some of the clients are asked to assist with is the annual *Night of the Stars* gala, as Dave’s mother describes this as a valuable experience for him:

He’s participated in their fund raiser two times. And so I think that kind of stuff makes him feel good because he enjoyed that...he was excited about that because he likes to dress up and he likes the horse and seeing all the other horse in costume.

Identity formation.

Having the opportunity to gain proficiency in an activity that is a relatively unique and is of particular interest to the child can contribute to the concept of identity formation. This added bonus was identified in the comments of nine parents such as Steve’s mother, “It’s something that’s his own. He owns it...I think most kids [with ASD] face the same thing Steve does. They feel like outsiders and that they don’t fit in.” Wayne’s mother explains that their initial goal in attending the program was “just to have fun. Give him something to have that’s his.” It is common for children with autism to have a particular area of interest on which they focus. Conveniently, for some it is horses, as Jim’s mother emphasizes:

...Jim's obsessed—one of his obsessive compulsive things is about horses and he loves horses and it just so happens it's something that's really good for him too...His first word was "horsie." Not "Momma," not "Daddy," "horsie"...Jim's thing is horses...He likes all horses...he follows the racehorses to some extent...

For Meghan, discovering the world of horses provided an area of interest where before there had been none, according to her mother:

...but from the moment the first time that she rode she was happy on the horse and...it was really the first time she had shown an interest in...something besides, of course, immediate family. [Or] an inanimate object. She became very interested...the riding therapy fits that important part that she has an activity that's hers, that she can excel at...I think the confidence and the sense of normalcy that it brings to Meghan. There is something that Meghan can do and Meghan can have as just hers and she can improve at. That's a struggle.

Meghan's grandmother echoes those sentiments and further notes this is a unique skill her granddaughter is cultivating:

Yeah, it's like a child that can learn music and once they learn it, it's something you give them that no one can ever take from them. Well she's not going to be able to play music. But she's going to be able to do this...This is her thing...And how many people...can do that? She's got something, yeah. And she dearly loves it...

This topic was also mentioned during the instructor focus group:

Margi: And not everybody can ride a horse, as we all well know, in the real world!

Barb: At least not well [group laughter]

Mary: In fact, I think that's even *more* so...because *now* they're actually superior, in that skill...

Margi: To the average Joe

Alan: To the average person.

Barb: Well, not even their *parents* ride... or their siblings.

Kerry's mother has witnessed the reactions her son receives when describing his riding accomplishments to non-riders:

And...he tells people, "I ride a horse." And they're like, "You do?"...they're like, "Wow!" You know, they're so impressed with that...And he's like, "Yeah, I ride"...and I say [to him], "Not everybody rides horses. Some people are scared to death of horses, even in horse country here"...but this he knows he does well... And people get so impressed when he tells them, and I think it reinforces it...like... "Oh, I don't ride a horse. You ride a horse...You're not scared? You don't think you're going to fall?" And he's like, "No"...And so he's very proud of that, because...everyone can play, well a lot of kids play soccer, a lot of kids play basketball and baseball but he's...one of his only friends that ride a horse.

Robin excels at an activity that most of his peers do not, which his mother feels is a benefit readily shared by any of the clients with disabilities:

...and he gets up there and stands like a jockey and he wants to do it and he's good at it and his peers are not...he does something that they're not able to do...So...just the confidence that he has from coming here. And of course, any kid that you see come here get out of that wheelchair and that's the only time

they're independent and I think, "Oh my gosh, what a great place for them to be...kind of isolated from their peers and to be good at something that other people aren't good at."

Enjoyable activity that makes child happy.

Whether the child is *horse crazy* or just takes pleasure in the riding experience itself, every family member interviewed describes the value of therapeutic riding as an enjoyable experience for his or her child. When asked if her son has gained any emotional benefits from therapeutic riding, Kerry's mother provides a succinct response, "...Just happy...he loves—he just loves it." Jan's father compares observations with his wife, "I don't know what she's said with you when you bring her. I don't think there's any doubt that she loves it" and she concurs, "Oh, she totally loves it. And she loves Ms. Mary and she loves the Horse Park." Wayne was an early convert to riding, as his mother recalls:

And he was really excited about it too...so for him to get excited about something was a big deal...So it was really...fun...He got on the horse the first time and just didn't want to get off...he loves it. He looks forward to it every...Wednesday.

Jerry's mother has frequently witnessed his reaction to his riding lessons:

Jerry thoroughly enjoys coming here. There is no fear...He's thrilled, thrilled to come... I think as soon as you say we're on our way to the Horse Park, he's good to go. And he's excited in the car on the way here, he's excited while he's here, and he's excited on his way home...it's an overall...love of his. I mean he loves it.

Steve had previously ridden in a therapeutic program in another state, but his mother feels the CKRH program has been more structured and beneficial, "...So...he feels real good about it...but...even though he's had some bad days...I've still been able to get him here. That says a lot. It really does...he has really enjoyed it here..." Even though Bob's aggressive behavior toward the staff and his horse provided some tense early moments, his mother now concludes:

...we use it as therapy, but it's also something that he does that he enjoys that a typical child does...It's worked for him. It's not been a bad experience. Once we got through those first couple weeks...he loves it...it's not a fight to go there, he's always ready to go. Well, that tells us a whole lot because he lets us know when he's not real happy...

Dave's mother also partially gauges her son's level of enjoyment on his willingness to return to class each week:

I think he's always liked coming...This is one that he's liked to do...every year. This activity...I just think the time he's on the horse, he totally enjoys his time with the horse...and it's fun!...I mean if he wasn't having fun, he wouldn't want to come back...I don't think he has any negative thing...because he's never said he doesn't want to come...it's just like... "It's time; let's get our jeans on and let's go," and...he never has said, "Oh I don't want to go"... So he obviously enjoys it.

For many of the children, riding is their favorite activity, as Rick's father indicates, "He has ridden in every session that's been available to him...because this is one of the things that he loves the most is riding horses...as long as he's riding he's

happy...All he wants to do is ride.” Jim’s mother appreciates that he has a preferred pastime:

...this is the thing that he gets the most out of, in terms of enjoyment...this is what he likes to do. This has been the most consistent thing that he’s wanted to do...it’s an interest and it’s good for him. I’m glad that he’s got something...that really interests him to that extent...

Meghan is another one of the children for whom horses are a passion, as her grandmother confirms:

...she was just tickled to death that she was able to come out here. And...she’ll take as many [riding sessions] as she can get in the summer...her love for the horse is the best—just phenomenal. She...just absolutely loves it. She’d come three times a day. She’d stay all day every day. She loves them that much... Everything is horse, horse, horse...there is something about a horse...she just absolutely loves...But this is her world. She’s got horses all over her room, all in the drawers, all her clothes has horses...And she has the love. She has the love.

Many children with ASD do not clearly communicate their likes and dislikes, but family members can often distinguish behaviors that indicate a positive response to their therapeutic riding classes, as Gary exhibits to his mother, “Yeah, I think he really enjoys it...he would...voluntarily run up and get his helmet on and seem excited about doing it so I think he enjoyed it...” John’s aunt reports similar actions:

...we can say in the morning, “John, we’re going to go...to the Horse Park today,” and he runs and gets his shoes and his...car seat and all that. He’s

ready...Hours before we're supposed to go. And when we turn into the Horse Park gate, he starts squealing and he's just like so excited.

Due to Brian's more superior communication skills, his mother can readily ascertain his continued interest in the riding program, but his brother Doug's reaction is harder to interpret, "[Doug]...enjoys it and...it's hard to find something, at least that I can know unequivocally that Doug enjoys...because we do struggle...he can't communicate his wants and needs, but...you can determine enjoyment in other ways other than words." It is easier to judge the program's effect on her older son, as "...with Brian...the success stories with him...have been more apparent...his challenges are...a little different...than Doug's, but...not as severe, but it's been beautiful to see him...progress, and some of his greatest moments have been associated with this program..." Coming into the CKRH program without anticipating specific goals, the boys' mother has come to consider this a valuable complement to their other interventions:

...I was just thrilled to get in and get them going and just kind of see how they [did]...so I didn't have a lot of expectations. I just wanted them to come and ride and see if they would enjoy it and...then I could kind of slowly start seeing ...
"Hey, this is beneficial for them"...but...if they're enjoying it and they're having fun, to me it's beneficial. To me it's worth it.

The volunteers who work with the children readily identify with the children's enjoyment, as expressed by Sherry in the first volunteer focus group, "Oh...it's so wonderful...you see these kids coming off happy...seeing the joy they're getting." During the second volunteer focus group, Jo Ann further elaborates on this theme:

Their parents will tell you that's all they'll talk about all day long. If...they're there on Wednesdays, they will get up on Wednesday morning saying, "Let's go to the Horse Park; time to go to the Horse Park." Until...they go to bed at night...And that's all they talk about after that, like "I can't wait to go back next week," so I know the kids enjoy it...I know a lot of them have been here for a really long time and I don't see them stopping any time soon.

Certain class activities or exercises in particular often elicit very positive responses in the riders. Performing *Around the World*, for example, requires the rider to shift his or her forwardly seated position to face to the side, then towards the tail of the horse, and then to the other side before returning to face forward. Bob is one of the riders who enjoys this exercise very much, as his mother describes:

...he does lots of the riding forward, riding sideways, riding backwards.

Whatever they call it—*Around the World*?...he does that, which...he thinks is hilarious. And the other day they had him hugging the horse's tail... he was laying backwards on the horse...But he was happy.

Another more advanced class activity that many children enjoy performing is the gait called the trot, when their horse is asked to increase its speed from the walk. Until the client learns to properly absorb the added impulsion from the horse's hindquarters, this can provide a very bouncy ride, which most children find quite entertaining. As Rick's father relates, "...he likes to trot...and he laughs and...got a big grin when they trot. Meghan's mother concurs, "I've heard people that hear her laugh when she's trotting. It's just a belly laugh. I wish I could record that. Yeah, it makes her laugh. She really loves that...She loves to be on the horse." Wayne's mother appreciates watching her son

trotting, "...and when they trot, just to hear him laugh. I mean, he giggles every time. He just loves to trot. So just to... see him happy...and to see him truly enjoy something..." In the first volunteer focus group, Alex and Shirley described the responses of their clients to trotting:

Alex: ...the one kid I do with Alan [Steve] and trotting, the faster we go the more he likes it (group laughter).

Shirley: That's typical of all the kids. They're all grinning like little infants, you know, trotting...most of the ones I've worked with are just tortelling [sic].

The second volunteer focus group echoes a similar sentiment:

Perry.: ...and what I tell everybody is when you see these children on these horses' backs and they trot, I mean...

Jo Ann: They're so happy.

Perry: They get so happy. They laugh. I mean some of them laugh so hard they can't catch their breath. And to see that kind of happiness in those children...it puts them on an even playing field, or not necessarily even, maybe up.

Family benefits.

The condition of ASD naturally affects many more people than the affected individual alone—most notably the parents and family members of the child. Although the original research proposal called for an examination of physical, cognitive, social, and psychological benefits of the therapeutic riding program, the data were replete with a wide array of benefits provided to family members of the participants in addition to the personal insights provided into the phenomenon of raising a child diagnosed with autism spectrum disorders. This section will examine advantages provided to parents or primary

caregivers and other family members as a result of the child's participation in the therapeutic riding program.

Parental challenges.

The diagnosis of autism spectrum disorders.

Several parents such as Robin's mother describe the process of becoming aware of their child's developmental symptoms which eventually led to a diagnosis of autism spectrum disorders:

...the only diagnosis we had was hypotonia...he had what's called a true knot in his cord...And so we originally were really worried that he had CP [cerebral palsy]. And so I was very conscientious of this and I always watched...fortunately for him, his mommy was an OT. And so I was constantly working with meeting his milestones. Now he never missed any, but he got them at the very end...Everything was at the very, very end of the spectrum, when he was supposed to gain the milestone. So when I would go to see the pediatrician, on those days, he'd say, "Well...he's rolling over"...So technically he wasn't delayed yet. Even though, you know he was. And...there was so many things that kind of added up. Where he wasn't talking. He did say "Mama" and "Dada" and "Uh oh." But I don't think he knew who Mama and who Dada were. We were constantly in his face going, "Mama." And so I think he...just copied that. And the same thing with "Dada." But I don't think he knew what he was saying...he really just seemed like a really easy child because he wanted to be left alone, he wanted to do his own thing, and where he had a twin, I was busy with her and she was more needy and more demanding. She probably was just a more

typical kid because she was constantly coming over to me and showing me things and wanting me to do things with her, and he never did. And, of course, that's one of the symptoms of autism, is that they don't bring things to you and they don't want you to gaze at things with them. They don't show you things, they don't point at things...And then...one of the more obvious things, of course, was that he didn't respond to his name. I could sit six inches away from him and yell, "Robin, Robin, Robin," and he would not look. But I knew he could hear because he'd hear the phone ring and turn toward it, or he'd hear the Wiggles on the TV and come running. But...socially he just didn't know, when someone says your name [you should respond]...and then... when you go to pick him up, he'd stick his hands and legs out. He did not want to be picked up...

Gary's grandmother communicates the struggle involved in her communication efforts with her grandson:

...it's really hard...I raised several kids and...when I talked to them and explained things, generally they understood and they would do [what you asked]...but you can't do that with him...so it's like I'm not quite sure how to reach him...I wish I could find a way to reach him...So I haven't discovered it yet...but that's the frustrating part. It's like if you could just reach him...

Family members are understandably resistant to acceptance of symptoms suggesting a potential diagnosis of ASD, as described by Kerry's mother:

See, my mom doesn't believe he has any of these issues at all. She doesn't live here, so she doesn't see him all the time. And she doesn't see all the awkwardness. Now my dad comes up a lot more than my mom does, and...he's

seen it. And he believes it a little bit more. But my mom's like, "Oh he's going to grow out of it. He's just going to grow out of it"...

In her work as an occupational therapist, Robin's mother commonly comes into contact with parents who would prefer to attribute their children's developmental delays to conditions other than ASD, as she herself initially did:

...a lot of people with children with autism will initially think that they're deaf because they're not responding to their names...They're not talking. So he did have some fluid in his ears, and then...he did have low [muscle] tone. So we could kind of make excuses for his behavior and think, "Well, maybe he doesn't have autism."

Interestingly, parents sometimes encounter resistance in their efforts to attempt to correctly diagnose the condition with their child's own physician. Kerry's mother had noted abnormalities in her son's speech development, but experienced difficulty convincing his pediatrician of the need for early intervention, as she recalls:

I'm like, "But...he's saying some words, but really he's not...like he says 'Momma' and 'Daddy'" but...then you say, "Well, say 'monkey,'" and he can't even repeat it back. He'll make a sound of a monkey but he wouldn't repeat it back. And then...he was four and a half. My pediatrician, he [Kerry] ...could barely...talk to him and...I would say, "Well, did you understand what he just told you?" And he goes, "Not really." And I said, "Well, I really think we need speech therapy." He goes, "Oh no, you don't want to do that. That will be just too emotionally scarring for him." I said, "Well, you know what's really emotionally scarring is that he talks to kids and they don't understand him and

they walk away.” And he doesn’t understand. And to him, he sounds perfectly fine. He knows what he’s saying, but no one else can understand him and it was so frustrating and so I had to just say, “I’ll deal with the emotional scars later.”...I’m like, “Well, when do you think he would outgrow this, if you think he’ll outgrow this speech impediment?” And he goes, “Oh, like by nine.” I said, “So he’ll have to be nine before people can understand him?” Anyway, he was a really good doctor, just I think a little misinformed...so I was really confused, and I think they’re teaching doctors now more because...we don’t even...have a developmental pediatrician here. You gotta go to...Louisville or somewhere else, and then I’ve had people go there and then even not really pick up on this. They [say], “Oh, he’s ADHD.” Well, there’s a lot of characteristic that are very similar and...sometimes these sensory things, if you knock those out, that ADHD part goes away.

Robin’s mother experienced less resistance from his pediatrician when she mentioned what she felt were his related symptoms, but still struggled to get referrals for both early intervention therapy and an eventual screening evaluation:

...Well I pretty much knew, it was very suspected that around 12-14 months, and...no one...his OT wouldn’t really say...and it wasn’t real obvious. He made good eye contact with his pediatrician. He had these low tone issues, and then he did have fluid in his ears. And so that could be confused sometimes with autism...I had memorized, by then, the DSM [Diagnostic and Statistical Manual] and so I knew. I could make...a mental checklist and say...all three of the categories I knew...I could check them off. And I would say to his pediatrician...

“I think...” and I would go in crying and saying, “...I’m so afraid he has autism...or at least PDD [Pervasive Developmental Disorder].” And...he reluctantly gave me a referral to therapy because I thought, “Well, what...is therapy going to hurt?”...and then...at 18 months I finally just said, “You know what, I’m going to take him to Vanderbilt to get the diagnosis. Because I knew...we have [a children’s center] in Louisville, but it was like a 9-12 month wait. And then Vanderbilt was only six months, so I went ahead and got him on the waiting list and so we couldn’t get him in until, it was almost 26 months before we were able to get him in. And we got the diagnosis...But, of course I did get him an intervention before. And, like you were saying, treat the symptoms...”

Although it still seems challenging for families to obtain a timely diagnosis and appropriate treatment, there is currently a much greater awareness of this condition. As the mother of a young adult (age 23) who was first diagnosed two decades ago, Jim’s mother’s early experiences differ from those of the younger participants’ parents:

...he was three, four maybe, something like that...when...a neurologist told me...do the best you can, but he’s probably going to have to be institutionalized as an adult...And it’s the kind of stuff that just, well it set me on edge big time because I’m like, “O.K....prove it, you know, prove it!” Well, he had done...EKGs and different tests and...MRI’s and nothing had showed up as being abnormal. I’m like, “O.K, so you can’t prove to me why he’s going to be this way because...”...Well, I talked to another doctor later who had gone to school with this particular doctor and he said, “Well, they used to tell us at med school to

tell parents that, and then if it turned out for the better then it was because you're a good doctor," which is foolish. And...I said, "Yes, but how many parents...would just take that and not even try?"...I was just horrified...And I know that there are parents who do. They say, "Well, the doctor said there's nothing we can do," and they just let it go. And ...that just...doesn't set well with me, obviously.

Reaction to diagnosis and grief issues.

Family members such as Gary's grandfather freely articulate their emotional responses to the child's diagnosis:

Well...we're amateurs in this whole thing...we were in grief, I think, initially once we realized what the condition was. But he's made [progress]...a little bit at a time. And it's...cumulative...we say... "Compared to this time a year ago, look at all the things he's doing"...we're very happy with the progress. We don't measure it versus other kids of that age or this or that...We just measure it against him. Gary against Gary as he was and what he's doing now...

Jim's mother speaks from several years' more experience with her 23 year-old son, "The grief cycle never ends; you just continue to face new challenges, new developments as your child ages." Meghan's grandmother describes the anguish elicited by the inexplicable alteration in her granddaughter's development, "But to see that little thing at six months old saying, 'Mom,' and she'd point out pictures and she'd say, 'This is this'...and she'd just point right at it. And then what happened? Just, it left...Unreal, unreal..." After depicting a frightening incident during which Meghan wandered away from supervision, her grandmother continues:

...Now that hurts because you can't help but have hope...that she'll get better.

But when that happens, it's like it brings you back to reality again...It's not going to happen, you know...They don't think the same way. But now, it has affected her some in that she didn't want to go out to pick up one of her little scooters that her mom told her she had to go get it because she'd left it somewhere, unless her brother went with her. So hopefully...it has scared her a little bit...and she doesn't much want to be left too far alone. But...that's a very hard thing to accept. And it's very difficult for her mother. It really hurt. It hurt her so badly. She said, "You know, I kept hoping that maybe she would do a little better, but...I don't think so."

Kerry's mother had the benefit of increased media awareness plus her friend's background in occupational therapy during the process of recognizing and accepting some of the early symptoms of ASD in her son, such as stereotypical movement and the calming effects of physical pressure:

And the Today Show did a show...I think it was a few years back, and until I saw the kid on the show doing the hand flapping, I did not realize that my child was doing that. And I was like, "You've got to be kidding me." And...[her friend and CKRH peer parent] Sally, being the OT...she was telling me things, like..."I saw kids doing that, Casey" ...but then she was a little bit in denial too, because she was like, "Well, surely it's not really that"...It's just...a roller coaster ride...And I feel like...there's a light at the end of the tunnel now, where before I didn't know.

Reactions of outsiders.

Family members must deal not only with their personal responses to their child's condition, but also to the reactions of strangers who are unfamiliar with the abnormal behaviors related to ASD. Meghan's grandmother recalls an upsetting situation:

...we went to a yard sale one time and...[Meghan] had a meltdown...she was going along and she was just fine, but sometimes she gets stubborn or she likes whatever, she wants it and if you say, "No," then she gets upset and then...she gets more upset and then...there's no calming her down...And so she just really had a meltdown. And...I remember these people walking by and saying, "You need to wear her out"... and...I thought to myself, "You ignorant... You're just ignorant. You have no concept"... And you just have to overlook people like that. They've not been there, they don't know. They don't...Not a clue.

Kerry displays intermittent stereotypical movements that readily call attention to his condition, but his mother describes how he is learning to adjust these behaviors:

...I see him, I think, "God, he looks so normal. He looks like a normal kid," and then all of a sudden I'll see him in the corner doing his little flap dance and his little bouncing and he'll come to me and now he's got this little thing and I call it his little tick...like before he talks he'll go, [demonstrates abnormal movement] ...in fact one of his friends even told him... "I really like the way you tap on things"...So he's modified his hand flapping to tapping.

As an instructor, Deb is keenly aware of the general public's lack of understanding of ASD:

...I've talked with people who don't...interact with people with autism. But to them, their perception is that is a hopeless diagnosis, and that these children are never going to be socially interactive. And I tell them about my experiences, and it's like we're talking about two different people...two different types of individuals.

Program Director Denise appreciates the additional stress placed on family members and the concept of *victim blaming* caused by the inability of many persons to readily recognize and empathize with a person who has a behavioral rather than physical disability:

...it goes back to whether it's a diagnosis of autism or a mental health diagnosis that is not apparent when you physically look at somebody... when this adult...or teenager...is walking down the halls at school, you don't see him in a wheelchair, you don't see him on a cane...whereas if there was a physical disability population...the response might be, "Oh," or sympathy, which is not good either really, but...there's kind of an "Aww,"...but when you see somebody that you can't look at them and tell that there's something going on, then for parents and for them, everybody says, "Oh, it's a behavioral issue; you need to...discipline your child"...People don't understand so they...look differently at them I think, which is really sad...So there's a lot of blame...there's a lot of expectation of if you did this differently...you would behave differently...you must be a bad parent. You must not be disciplining your child...or they wouldn't be behaving this way.

Proactive parents have searched for effective interventions.

Instructor Denise has witnessed the need for family members to be proactive in seeking out information and appropriate interventions for their children, "...so many times and so many different places, they're fighting a system. They're fighting to get in the school systems...they're fighting with the insurance companies to get them to pay for services; they're fighting, trying to obtain services." While discussing how glad she was to be able to profit from the therapeutic riding facility's program, Brian and Doug's mother also addresses the frustration she has felt:

...there's no handbook out there...when you have a child with a disability that says... "Hey, gosh, you ought to try this, this, this, and this, and here's their websites or here's their phone numbers"...You're just kind of left to...find out all this stuff...find your way, and that's too bad. That's really unfortunate.

Wayne's mother has found little guidance from physicians or school resources, finding it necessary to rely on suggestions from parents in similar circumstances:

I'm working on trying to find out what I can get for him...and I'm really bad about knowing what's out there, unfortunately...you have to talk to parents...to find out what's out there...like the schools don't tell you and doctors don't necessarily know, even. So...it's by word of mouth.

With minimal support and advice from their pediatrician, Kerry's mother has taken the initiative to work independently with her son while actively seeking out potentially useful interventions:

...we've been giving him good coping skills...And I can't help but think that that's not helping. I mean, I don't think anything I'm doing is hurting him. Like

my doctor was so worried about me giving him therapy...And that blew my mind...that's when I totally started challenging—I was like, “You know what, my doctor is confused on what's going on with my kid and I can't...seem to make him see it so I'm just going to have to act on my own.” And it was really hard and I went to Cardinal Hill and I was talking to all these therapists and no one would get together and...I was like the coordinator and I was like figuring out what he needed and I didn't even know what I was taking about...except I knew what was going on with him and I could tell them, “Well he's doing this. What do we do when he does this?”...But the doctors can't get together and, now my doctor since...I still go to the same group, and I send him everything. He wants to know. He's like, “Well, how's this riding doing? Send me stuff on it,” or any kind of...update the OT does on him, I send it to him...but he still...won't ask about it...he's still like, “Oh...kids will be kids. Read a book on how boys are bad”...you, the parent, are the one who has to go out and deal with it...and you feel awkward and you don't know what you're doing because you don't really understand it yourself. You just go out there and then you just find it. And if you're willing, I think there's people out there, especially now, especially with all the autism. I mean Autism Speaks...has been wonderful...

Jim's mother has had the opportunity to view the dearth of factual data on treating children with disabilities not only from the perspective of a parent, but also from her early course work and classroom experience as a teacher.

...Well actually that was one of the biggest disappointments of my life, and I kid you not. After Robby...got into kindergarten...before he did, I...was part of the

push for the KERA preschool program that's in the schools now. When they passed KERA in 1990, Jim was just getting out of preschool and getting ready to go into kindergarten...and...after he got started in school, I had an opportunity to go back to school to become a preschool teacher, which is what I am.

And...when I went...I had these high expectations of walking into these college classrooms, masters level classrooms and [them] saying, "O.K., if a child has Down syndrome, this is how you teach them. If they have cerebral palsy, this is how you teach them"...[but] I was like, "What?! You're not giving me what I wanted here!...You don't know? You're not the experts here?"...And it's not that they didn't help me, they did. And I think I'm a pretty good teacher and I think a lot of it has to do with my experiences with Jim, as much as any education that I've managed to get along the way...but it was...a shock to me to find out that...they haven't figured out...exactly how to teach children with these disabilities, and I was just horrified.

Thanks to the lack of a generally-accepted course of action for treating children with ASD, a recurring theme is communicated by most of the family members regarding their search for useful interventions. After describing his and his wife's efforts to take Gary to museums and other venues, his grandfather stresses, "...the parents have tried...a number of things. They haven't spared any effort...And we would always like to know...what additional we can do. Anything that we can do. Anything we can try differently or...just any suggestions." Kerry's mother was surprised to learn the therapeutic riding program was available to her son, "...I thought it was just for people in wheelchairs...But, they're like, 'Oh no, you could do that too.' So I'm like, well let's try

it...We've tried everything else..." Although Jan is not currently participating in any other formal interventions, her parents are always on the lookout for potential activities for her, as her step-mother explains:

We're always trying to think of new things, though...You know you asked about expectations for the program. And in the beginning, for me, I had no clue. I had no idea. I just felt like it was our obligation to expose her to this and to give her a chance to see what she could do. Honestly.

When asked about her expectations for the therapeutic riding program, Jim's mother expresses similar sentiments concerning her pursuit of suitable activities:

I don't know that I really had specific expectations...at that point we didn't have a diagnosis. We were still trying to figure out...what...was happening. And it was just kind of the thing that if somebody told me that it might work, I went for it...And so...I can spend time doing this for him, or I can be selfish, so-called, and deal with problems that are ten times worse...that just doesn't make any sense to me. You do what's better for everybody, which is...to chase down the therapies and the recreational things that...keep him functioning.

Because Meghan had displayed little interest in any other activities besides her intense interest in horses, her mother was grateful to find a constructive outlet for her within the therapeutic riding program:

...We really didn't know what to expect actually...when we heard that there was even such a thing...it was just a matter of putting her in an activity. Something that would be appropriate for her because it's not very easy for children with these disorders to fit into...a regular riding group, for example. So we didn't really

know what to expect as far as therapies, what would happen. So we were just eager to try anything.

Meghan's grandmother supports her daughter's statement:

...just doing any and everything you can...We're just trying and struggling to get her whatever it takes...to try to help her. And this program...oh, it's just been wonderful...when you have a child like that...you're grasping for any and everything and if there's...anything, you're going to try...that you possibly can. And can afford.

When asked about her experience regarding the parents' expectations coming into the program, Executive Director Pat explains that Program Director Denise pre-interviews each parent to determine his or her goals for the client:

...and in some instances they really have no goals. They just want their child to have some other kind of experience and...they're looking for something else that they can do. I mean that's the bottom line...Anything they can do...That the child wants to do so we don't have a big fight in the car...and I think a lot of parents come to us without a goal in mind. I mean their goal for themselves is to find something else my child can do that might help in some way.

Accordingly, it is not surprising to find that all family members interviewed for the current study are intensely dedicated to locating meaningful activities for their children.

As an occupational therapist, Robin's mother was fortunate to initially have some familiarity with existing therapies, but she is also keenly aware of how many other children with autism spectrum disorders go without any appropriate interventions:

...after we got the diagnosis, I started thinking about all the stuff I knew. All the resources I am familiar with. And so of course this [CKRH] was one of them...So we were really fortunate that we had some knowledge of things that we could get him in...Of course, that's common when...the parents have them in this program, that they've also tried a lot of other things, and I think how many kids that are out there that aren't getting any help or...parents are in denial or just aren't getting a diagnosis or don't want to deal with it...

Goal is best life for child; "Be all they can be."

With no known cure at this time for ASD, family members such as Gary's grandmother cautiously set as realistic goals as possible for their children, "...I mean we have a lot of hope for him to...fit in." Brian and Doug's mother is dealing with disparate ends of the autism spectrum with her two sons, and must therefore establish different expectations for each, as she describes for Brian, "...unlike Doug...he has mastered swimming...And...doing some other things, so...I want to give him an opportunity to fully explore...being an 11 year old." John has three caregivers closely invested in his continued progress, as his aunt explains:

And he's doing such a good job...it's just been a wonderful thing and we hope that we can continue to do this for him...that's how we all feel, and his mom feels this way...[and] my sister, we all take care of him because she's a single parent...And...we hope that he can be all he can be and...whatever sacrifice we have to make is worth it for him...

Kerry's mother works tirelessly to find new ways for her son to grow and learn, "...my goal was...to keep him...positive and...knowing... if he has to learn it a different way,

it's no big deal. [It]...just...takes him a little longer, no big deal...because...of course you want to do everything you can for your own child.” Her final interview comment came as her son approached with his horse following his riding lesson, “I just want my son to be happy, and to be able to function in life.” Rick’s mother put it even more simply, “God gave me this one child....” These parents willingly sacrifice for the sake of their children, as illustrated by Jim’s mother

So many people...think, “Oh man, you just do too much for him”...but the reality is, as his mother I feel like it’s my responsibility to give him the best life I can. On the other hand...I’m not helping myself by not giving him what he needs, because then there we both are in a mess... and I think most parents of kids with disabilities are this way... you just kind of grit your teeth and do what you have to do.

Benefits to parents.

Normalizing activity.

Instructors, volunteers, and four family members spoke of the opportunity the therapeutic riding program provides for the children in the study to take part in a more typical children’s activity. Instructor Mary describes this effect, “...it normalizes something in their life.....When they’re on horseback, when their parents look across, they’re like every other child on horseback. They’re just taking a riding lesson.” Volunteer Alex has noted the reaction of the children’s families, “I think maybe for the parents, it gives them a sense that the kids are doing something normal or there’s something that normal kids do.” Meghan’s older brother was diagnosed with a condition similar to autistic disorder but was not as fortunate to find an enjoyable activity, as her

mother recalls, "...my oldest child never fit in anywhere. Never achieved anything in any of the other areas because...he didn't fit those roles...couldn't get in the right place." Wayne's mother compares his involvement with the riding program to opportunities available to his peers or his siblings, "Other kids play...t-ball...and so it gives him that ability to do what a typical child does. It gives him a sense of accomplishment. So...he would do it, she would do it, any of my others would do that." Robin's mother supports all of these observations:

That's the thing I like about this program is that these kids out there look like any other kid on a horse and so you wouldn't know that one of them just came up on a wheelchair or...in Jack's case...he used to be screaming and crying to get up there, and now there he is, out there riding this horse. Like any other kid would be riding.

See child achieve.

Through participation in the riding program, parents and family members are often able to witness their children's successes in a very challenging activity, as volunteer Jo Ann reports, "...a lot of them say...[when] we first started, they couldn't really do much of anything and now look at them now..." Jan's step-mother readily attests to this fact, "I mean she has far surpassed...anything we thought her capable of," and Jan's father echoes, "And in ten sessions...if you had told me she'd be leading a horse around on her own and mount one, I would have said you're crazy." Robin's mother has also seen this transformation, "...when I look...and he's trotting and I think gosh, look at his posture out there, he looks like a rider." When the instructor are asked during their focus group what interactions they observe between the students and their

family members along the fence line of the riding ring, Deb remarks, “They take pictures and they smile,” and Mary declares, “Oh, my gosh! They beam, they absolutely beam, and the kids are like, “Watch me! Watch me do this!” As the staff member who does the initial evaluation of the potential client and interview with the family members, Denise is quite aware of this common occurrence:

...people are telling them that he can't do, she can't do, she's not able, she's not appropriate, she's not... And then to come here and to watch their child be able to succeed...is for me...a very...awesome experience because...it's that pride of a parent...that a lot of people see when...their son makes the touchdown or...a lot of parents see it on a regular basis, where for some of our parents, this is...where they see it.

Executive Director Pat had some initial reservations about putting CKRH clients on stage to ride their horses in front of the attendees at the annual fundraiser, *Night of the Stars*, but found her concerns to be unfounded.

...when we first started that event, I thought, are we showcasing our students for fundraising...and putting them on display with a disability? ...that was...kind of a little red flag in the back of my mind when we started this. But of course...parents volunteer to do it. And...it wasn't hard to round up the riders. People really wanted to do it. But all those kinds of reservations really dropped after the first year because as a couple parents explained it to me...my child will never be the star in the school play. They will never be the lone ballerina on the stage or part of any—they won't probably even be in the chorus at school...this is a moment to shine that we would not have had. And...we're just so grateful that

she got to be queen for the night, or he got to be king of the mountain...for an evening, and go out there and applaud and be dressed and took a real sense of pride in the accomplishments. Nobody went home terrorized. I mean they all went home energized and feeling so empowered by the opportunity. So that reservation went out of my head...because looking at it in their light made me feel a whole lot better...Providing a moment to shine.

During the initial parent interview, the researcher was fortunate to witness firsthand the thrill Jan's parents experienced when they paused to videotape her triumphant attempt to mount and sit astride a horse for the very first time:

Mom: Way to go Jan!

Dad: Jan! Jan!!

Mom: Way to go!

Dad: Jan! Jan, look over here, Jan!

Mom: Look at Dad, honey!

Dad: Jan, great job! Oh man, that is too cool! I can't wait to watch that tonight.

Mom: Oooh, that was a huge step...Only the beginning.

Pride in child and limited opportunities for participation or success.

Achievement typically elicits a sense of pride in parents resulting from their children's accomplishments. An additional option for the program's riders is the annual Special Olympics therapeutic riding competition for which several CKRH clients are selected to compete each fall. Meghan will be riding in the Special Olympics this year, and her mother reveals, "And it gives us a sense of pride. Because...competing in things that...we didn't think would be possible," while Meghan's grandmother describes her

granddaughter's excited anticipation and the effect on the extended family, "...and the family is coming from all over and...this is her third year, I believe...she rode the first time when she was seven she won a sliver...So we were so pleased." Just prior to his interview with the research, Rick's father was told his son had been selected to compete. He was obviously thrilled with the news, and immediately made a cell phone call to his wife to share the good news. He later discussed the process of preparing for this new challenge:

...I think they've [CKRH staff]worked with me very well with trying to help me to help him achieve the goal of the Special Olympics and I'm so grateful for that...and he's done remarkable and I think...he's going to be a shining example for CKRH and I'm very proud of him.

As the competition draws near, Executive Director Pat fields multiple calls from excited parents of the competitors, many concerning appropriate riding attire for the event:

...we probably got a gazillion phone calls a day over people's stress. Because this is the big day in the life of their child...I can think of two of those riders that know how many days it is until next year's Special Olympics. I mean...[they] kind of...count it down. So this is a big deal...And it's their moment...for their child to shine and they want them to look great.

Gratifying; makes parents happy.

CKRH staff and volunteers are quite often placed in a convenient position to observe positive reactions from the client's supporters, as volunteer Shirley notes, "...you can look over there for one hour and see the parents grinning from ear to ear and watching their kid ride." Such visible reactions of the parents have a positive effect on

volunteer Sherry , “Yeah, it’s just a joy because you can see parents with grins from ear to ear and kids getting off and they’re tired but they’ve done this thing...” Volunteer Jo Ann has taken the opportunity to interact with parents sitting on the sidelines during the lesson times, “I mean if you just sat down on the picnic tables...during, before or after whatever sessions, you can talk to anybody about anything. I mean, they’re all happy to be here, more than happy that their kids are making progress. I have yet to hear a parent who is not happy that their kids are here.” As a horse leader during the lessons, volunteer Perry doesn’t have as much direct contact with family members, but when he has talked with them, he reports similar responses, “...all of them are just deeply, deeply grateful for everything that everybody in the program does and...if it wasn’t good, they wouldn’t keep coming back and they wouldn’t be so grateful, I think.” Serving as both the program director and an instructor, Denise probably deals the most actively with the greatest number of parents and family members. She readily appreciates their interaction with each other, “...and then the next thing that I see—I don’t know how many actually identify it—but that I see is just the satisfaction and the pride and the amazement that, “Wow, my child can do this.” John’s aunt supports the therapeutic riding program by making copies of CKRH information to distribute to parents of potential clients. “I would recommend it to anybody...And I have, and I will continue to in the future because...I think it’s been a blessing and a Godsend for us to have been in this program.” Jerry’s mother wholeheartedly agrees:

I would recommend it to anybody...obviously I would recommend it to any parent with a child with autism...because I have seen results from my child and I see my child so happy every time we show up here, and the excitement just in his

little body, even if he was only coming to ride a horse and not getting the therapy, I would still be just as ecstatic, but to have it as a group, and have him love something so much, to get therapy on top of it is so exciting.

Supportive environment.

Caregivers feel comfortable leaving their children under the supervision of patient, knowledgeable, and capable instructors and volunteers. Qualities that the CKRH staff and volunteers possess that are reassuring to family members were first recorded during the instructor focus group when Mary recalled a conversation with Jan's step-mother:

...but her mom would say to me...“You're so...patient with her.” Because she [Jan]...does a lot of repetition – “Are we done? Are we done? When are we gonna be done? Are we done? Are we done?” And I'll say “Nope – we've still got work to do!” And off we go. And I got the very distinct impression from her mother that there were a lot of people that rushed her...that didn't take time to let her process and sequence all of her events...just kind of, “Oh, well,” and kind of just thought *for* her – “O.K. she'll like this, she'll do this, she'll go here”...and I think all of that's one thing we all have in common here.

John's aunt credits a specific instructor for her nephew's progress, “...Suzanne worked with him for like a year and a half and, and...it was great. They have such patience with them and...they've seen the changes in them too,” as does Steve's mother, following her son's move to Alan's class for more independent riders, “...Alan...expects a lot and is very to the point and that's what Steve needs. He thrives off of people who are very disciplined and Alan is a very disciplined teacher...so he does real well with that type of

structure. Meghan's mother recognizes the combined effect of all the CKRH personnel that allows her daughter to excel, "...in an environment that's welcoming and accepting and uses her potential and accepts her limitations..." Jerry's mother appreciates being able to take advantage of this reputable, high quality local intervention:

...I think this is incredible. I'm very, very excited that people are out there and...we have been extremely blessed to be in Kentucky...where we can have these alternative therapies...I have friends with children with autism and they aren't so fortunate. And...it's actually a really, really exciting and rewarding thing, and it's great that there are so many people out there trying to help our children.

As the parent of a child with physical aggression issues, Bob's mother is particularly indebted to the competent efforts of the staff:

Well...Denise kept saying, he is not the only child we've ever seen do this. He's not the only child, I promise you...Everybody that we've ever seen work with him, even when he gets explosive...they all handle it very appropriately and nobody gets frustrated with the fact that...they've just been socked in the head again...So that means a lot...that patience, and I think he sees, "O.K., they're not going to hold that against me..."

While praising the efforts of the CKRH program, Doug and Brian's mother also provides an enlightening insight into the trials faced by a parent of sons who represent visibly different points of the autism spectrum:

...and it's done in an environment...just the nurturing nature of...the folks that are in place out here is...something that...I really cherish because...when you

have a child with a special need and a special challenge...and in Brian's case it's not quite as obvious. I mean, you can meet my son Doug and immediately recognize that he's a special needs child. Not the case, so much, with Brian. So then you kind of become a little more protective of...the challenges that he does have and...the folks here are just so adept at...truly trying to measure each child, and how can we help...[each one] along...You know...it's really hard...to live in an atypical world, quite frankly. And...you run around to different things and you're...trying to keep your kids...mainstreamed. And...it's just kind of like a big sigh of relief...You walk out here and you don't have to worry about if your kid's doing something strange or...I mean I feel like...you know you're welcomed here.

One unintended benefit of the therapeutic riding lesson, as volunteer Shirley points out, is that "...it also gives the parents a break." Alex appreciates that, as a class volunteer, he can help make this happen, "...you get a sense of...giving something back...I think you do give a break to the parents." The seemingly simple pleasure of a respite from a child who often requires a large investment of personal energy is a significant feature for many parents, as Rick's father notes when discussing whether or not other CKRH parents volunteer in the program, "...some [parents] just look so tired and...this ends up being a break for them...I really can't criticize them for that." Jim's mother thinks of it as an even exchange:

...my mother keeps saying, "You just run yourself ragged, trying to keep him out doing things." I said, "Well...if I'm running myself ragged to keep him out doing

things...while he's out here I can sit and read a book or do whatever...I can be outside. I can do some things.”

Wayne's mother concurs, as she enjoys sharing this *down time* with other CKRH parents:

Well that's what we were saying a few weeks ago...two of the other moms and I were sitting and just chatting and...this is just as much for us, I think, as it is for the kids because we get adult time when we can sit and swap stories or just talk and just have – oh my gosh, I can relax; I don't have to worry about what's going on with my child...my special need child and...so it's just nice to be able to sit for an hour. And just talk...it's nice to be able to sit down and...relax and not have to worry about him taking off.

Executive Director Pat has heard a similar refrain from many parents:

And then sometimes it's just the frustration... “I've had such a frustrating day, you have no idea”... “It's just been one temper tantrum after the other and”...“We just need to come out here, sit outside, get a break, and everybody's happy”...

The therapeutic riding program intends to primarily target the needs of each client, but the overall process tends to affect family members in a positive manner as well, as denoted by Meghan's mother in assessing the benefits of the program, ... “And as far as how does it help, I couldn't put my finger on one thing other than saying, it is therapeutic in all areas...and it's not just for the child. It's the parents, it's the family...”

Doug and Brian's mother made a more direct link to the facility:

...you just kind of feel like it's family and you really enjoy that...and the folks that administer it is just their openness and willingness...it's a partnership. I feel

like I have partners. I feel like when I come out here, just me as a parent...I've got partners, I've got support system, I've got friends, I've got people who understand...

From the initial application and evaluation process, the therapeutic riding program is designed to be a joint effort among the CKRH facility and the client and family members, also taking into account input from the child's physician and any therapists involved in his or her overall treatment. Program Director Denise describes the intake procedure:

There's registration...that they must complete...And a medical history must be obtained and a physician's signature...that just basically says...in my professional medical opinion, there's no reason why this individual could not participate or should not participate in equine assisted activities...Once that is signed and turned in to us...then we schedule an assessment—a time to meet. And a parent and/or caregiver comes out to CKRH with the participant and...we ask the parent to go through a written assessment just to kind of give us some feedback of where we are. And we will either plan...an activity that is non-mounted with a mini [miniature horse], or...if the individual—we feel reasonably sure—is coming into us at a level where they're ready to get on the horse, then we will...include a mounted assessment. If that's not possible due to weather or other conditions then we may start on our Equicizer [mechanical exercise horse], but...what we're trying to do is get an assessment of...do we know left [and] right, do we know our colors, what is our sitting balance astride, whether it's on the Equicizer or on the horse, what are our fear levels...we're getting a base of where we're going to start

from...What are the skills that we're going to be working on so that we can fit them in the best possible lesson to work on those goals...Every year...we come back and say, "O.K., where are we now?"...The assessments are normally done with myself and the full time instructor...we feel like that that is key for them to develop lessons, goals, objectives, those type things.

The dynamic process continues through each riding session, with appropriate client information made available to class instructors and volunteers. Although the staff members and instructors have access to the complete client files containing each client's diagnosis, medical history and assessment details, the *Rider-at-a-Glance* cards are a fairly recent addition that allow any CKRH volunteers to review the behavioral plans that have been designed for each client, as Denise describes:

And we work through a plan of action...with the parent. We have what's called a Rider-at-a-Glance card so that at the beginning of each year...either myself or the full time instructor writes out an individual's goals and all pertinent information. Not medical information, but all pertinent information, the participants have access to those cards, parents have access to those cards. And volunteers. So if we're running into behavioral issues...then we develop a behavioral plan in that assessment time or at the beginning of the year, or whenever appropriate...and that's documented on that card and it's set out with the volunteer registration on each lesson so that a volunteer can come flip through, find their rider and go, "O.K., this is the behavioral plan, this is what I should do." So this is developed by the parents, the school teachers, the OT, the PT, the other professionals that are

working with this individual. So we're following the same plan that everyone else is in their therapeutic world. And their daily living world...

Denise describes the utilization of a management strategy for *helmet compliance* that follows the behavioral plan described on his Rider-at-a-Glance card:

...an individual who rides with us...five minutes in, toss that helmet. It's gone. Thrown across the ring...well hopefully you can catch it when the hand's coming up here, but sometimes it's very fast gone. Well, there's a behavioral plan for that. You immediately get off the horse. But that doesn't mean it's the end of the lesson. You get the helmet, you redirect, you get back on the horse with the helmet and...you keep going

Doug's screaming outbursts have also been successfully managed through the use of his behavioral plan that models the same approach used by his mother and his teachers. One CKRH client in particular epitomizes the classic need of a child with ASD for a standard routine, and any unwitting deviation from this schedule on the part of the staff or volunteers can lead to adverse consequences, as detailed by Denise:

Another...example in terms of behavioral plan...is Rick...we have a very consistent routine and that is documented on the...Rider-at-a-Glance. So every volunteer that—even if they're subbing for that day—they can read that and they know...these are the steps and this is the process that Rick needs to go through...before we get on the horse. And this is the routine. And if you follow that every time, then we have no behavioral issues...if you are asking him to get water before he goes to the bathroom, you're going to have a behavioral issue...if you're asking him to get on the horse before he gets his water, you're going to

have a behavioral issue. So we lay out the plan and you have no behavioral issue...Prevention! And you know we talk about prevention a lot here. We talk about it with horses and we talk about it with our clients as well. It really is all about the prevention...Sometimes a little bit of prevention...you don't ever have to do the problem solving because they don't occur, which is really nice.

Executive Director Pat illustrates the communication that takes place among the staff, instructors, volunteers and caregivers throughout each riding session, which is so crucial to a positive ongoing therapeutic relationship:

And so then it would be up to us to sort of sit down and say, "How about we work on these things or work on these things, and...this is what we worked on today, in your lesson and...you might wanna do this at home...or a suggestion that could be implicated...at home"...I mean I think a lot of our instructors have very good rapport with the parents of their children and they can say..."This [client] is having a bad day today; something was a little off," and they figured that out, like what it could be or..."Today was just so great, I wonder what the difference was," and...maybe it's something as basic as a nap time...that didn't happen or could happen and maybe it's because we switched horses...but those things are sort of...a good conversation between the parents or the therapist and...the CKRH instructors.

Members of the first volunteer focus group have often profited from parent or caregiver suggestions, and also welcomed the appearance of the Rider-at-a-Glance card system:

Shirley: ...One of the things I like about some of the parents through the years...they've been forthcoming telling us how to communicate with them...or

even if it's sign language or if it's..."This is what he'll respond to better,"...and that's real helpful if you can talk to the parents...A parent will think of something...and say..."Well he really likes to wear gloves when he rides...so I'll bring,"...or just little things...

Sherry: Yeah, I know what you're saying. "You've got to be tough with him, he's going to push you as far as he can, so just say no,"...[that] kind of thing...

Shirley: And then there's also the thing where...some of them don't like to be just barely touched...

Sherry: Touched, yeah.

Shirley: ...if you're going to have contact, how to hold them.

Alex: Well, they started those cards this year that supposedly have all that stuff on them.

Sherry: Yeah, which is really helpful.

Such a teamwork approach between riding facility and caregivers cannot help but provide insight into the atypical lives of the clients' families, as well as the development of respect, as noted during the second volunteer focus group:

Perry.: I think the parents of these children are special as well...and...I don't know what goes on at their homes...but just to see them...I think the parents of these children are really special as well. I mean they have to be.

Jo Ann: It takes a special person to be able to put time, effort, and...keep a level head and still enjoy their lives.

Family members feel a sense of alliance not only with the CKRH staff and volunteers, but also with the parents of other clients in the program, as Meghan's mother

explains, “It’s therapy for everybody...There’s a lot of networking that goes on...In that hour of time where your kid’s on the horse and you’re sitting there...I have gotten so much information. So much.” Kerry’s mother concurs, “...you find out a lot of interesting stuff and what works, what doesn’t work...” Wayne’s mother also speaks to the advantages of trading information with others in similar situations:

...[Be able to] Talk to another adult that knows at least somewhat of...what you’re in...I mean everybody’s different. Everybody’s diagnosis is different, and even if there’s two autistic kids, they are guaranteed to be different...You might have some similarities, but chances are there are so many variances that...it’s like, “O.K., yeah, we don’t have that problem,” but then you can give them ideas that you’ve done and vice versa...

Staff members are especially cognizant of the existence of the facility’s informal family support network, as described by Program Director Denise when asked how families benefit from the program:

One is the social interaction and the networking. The networking is a big thing...for parents, being able to spend the hour when their child is riding, dedicated to talking to other parents that are in a similar situation as they are.

And sharing resources and just conversation and support and so that’s a big thing.

Executive Director Pat feels the majority of such unstructured group meetings take place at the old picnic table located outside the barn and adjacent to the riding rings:

Well...it’s not a direct service that we provide, it’s just one of those little things. Our old picnic table outside...we’ve always said is going to go with us when we move to the new facility because a lot of things happen at the picnic table.

Because the children tend to be roughly the same age...they roughly have the same challenge and are working toward the same type things. So as parents are watching the lessons and they're sitting there week after week together, they start to really share...resources. "Oh, I've tried this, this is really good," or "You know, if you're going to that school, you better watch out for this teacher because she doesn't know anything about autistic students"...it's everything from soup to nuts, but it's a resource...I think a lot of the best stuff is at the picnic table.

Volunteers in the first focus group are also quite familiar with the significance of the picnic table for the parents and caregivers:

Sherry: The famous picnic table.

Shirley: Well it is, it is...They've gotta have support for each other...to put up with...it's hard. And as long as they can see what the other people [go through]...

Alex.: Well that's support for each other. They can understand where they're coming from. I mean...when you talk to the parents at the regular school...they're not going to have the same understanding.

Shirley: ...But if they're talking to, like you said, a parent of a normal person then it probably would make them feel worse about their...make them...

Sherry: A little defensive or a little uncomfortable.

Shirley: And a lot of these parents...the kids, they're out here riding together, but they also swim together or they bowl together or...they go to the Parks and Rec's dances together and stuff like that. So they have other interaction with each other, a lot of them.

Parents give back as volunteers.

Services provided can become reciprocal when parents and family members of clients offer to volunteer at the therapeutic riding program. As Steve's mother observes, "...volunteers are so important to the success of the program...so I don't mind helping. Actually...I kind of enjoy it... I come out Thursday afternoon and sidewalk...it's rewarding to me to be able to help kids like Jacob." Rick's father has been an enthusiastic supporter for several years and feels he can contribute suggestions for strategies that have been successful with his son:

...I've not only been a parent and a client but I've also been a sidewalker...and I intentionally...offer because I felt like...I should always give back here. This is a great program and limited funds and they need all the volunteers that they get so...I just said, "Hey...I'll do it" ...some parents do, some parents don't...I'm tickled just to be able to give back and come up with something that might help other kids.

Program exceeded expectations.

Parents and caregivers of 11 of the 15 children in the study feel their child's experience in the therapeutic riding program has exceeded early or initial expectations and readily recommend the program for other children. Jerry's mother describes the effect of his seemingly simple victory in sufficiently overcoming his sensory issues so that the family can have a puppy, "And it's actually something very simple to most people, but to us, it is a huge milestone." When asked if they would recommend the program to other caregivers dealing with autism spectrum disorders, Wayne's mother quickly responds, "That actually happened!...I did tell my friend who has a child with

autism, and...he's actually riding here now...but why I would tell them...it's just, it's been a great experience for him." Robin's mother concurs, "And I just didn't dream of all the things that would improve, after we came here...I spend a lot of time telling people, "You have got to get your child in this program."...I just tell them...how I've seen the biggest improvements here and even after all these years of therapeutic interventions." Meghan's mother has seen "...improvement in all areas, of course. Yeah. If we could do it every week, we would be there every week. If they had sessions all year, we would be there every week," and Meghan's grandmother wholeheartedly agrees, "...I have already recommended this program many a time... 'Listen, you need to get in contact with these people. You just can't imagine what it's going to do for these children. You've got to get out there.'"

Kerry's mother acknowledges that some parents are unaware that children with ASD can indeed profit from the therapeutic riding program:

Because it used to be thought...[that it was] definitely physical disabilities...That has been a huge...but then they didn't think it could help...just children with other issues, and that's what is so amazing, that they're finding it can...But it's definitely helped...it's helped more than I ever thought it would...It's just amazing. I was a little skeptical, you know...Kerry's little buddy, it's his best friend in the whole wide world and...his mom took him out of our school and put him into a Montessori school, which he's doing really well...But...He says he doesn't have any friends. And I tried to get her into this group. She's just not buying it. I tried to take her by the Horse Park but...[when] she thinks Riding for

Hope, she thinks of children in wheelchairs and things. I'm like, "Look [at Kerry's]...class, there's not one. They're all like him. They're all like him."

Some parents admitted to having initial reservations about the willingness of their child to participate, such as Jan's father:

One of the volunteers...mentioned it to my wife and I talked to Denise on the phone and...I really didn't know what to expect, but she said..."Bring her out, let me spend some time with her...I've been doing this long enough to know whether I think...it's something that we could do or not." And she was here just a short amount of time, followed Denise around, went in a paddock or two...and Denise said, "Oh, yeah, I've had kids that have had a lot harder time than this on an evaluation visit"...but...watching how they've started at the very beginning...and then just slowly moved along...

John's aunt was also more impressed after the first few lessons:

When we first brought him...I thought, this is not going to work. Because...when I saw how...tense he was and unsure he was of the horses, and I would have never ever thought that he would have...gotten to the point that he is now. So I'm so glad that I didn't just...stop and say, "Well we're not going to do it anymore." And...it's just wonderful. I would recommend it to anyone...as a matter of fact, I've had people ask me since we've started coming here, and even the ones who haven't asked me, I recommend it to them...I would like to do this for as long as he tolerates...he wants it. And as long as it's helping him...And the psychology department at ECU waiting room and the waiting room at the ECU speech... people will ask me what kind of therapies...is he in. And I will tell

them, and then I will bring up the horse therapy...And I tell them that...I really think that the child would benefit from that...

Bob's CKRH initial evaluation undoubtedly remains one of the more memorable in the staff's estimation, thanks to his aggressive reactions that involved physical attacks with his fists. His mother has therefore been pleasantly surprised with the eventual outcome:

...we didn't have a whole lot of expectations. It was a matter of we were just going to see what happened. And...we've seen some really good things come out of it...and...we really enjoy it. It's been a very positive experience for him...for all of us...initially we thought it was going to be the worst experience in the world...because...the evaluation was horrible...at that point in time, we were looking both at music therapy and the riding. And, so in fact I told my husband, I said "Well, I'll try one session of riding, but I'm not expecting to stick it out"...I mean, I'm uneasy on a horse. And so I knew Bob's temperament, that when he gets uneasy, it's the fight or flight takes place...and the nice thing was, Socie's a nice, even-keeled horse, thank God...it really was a positive experience in a way that's kind of hard to describe.

Her faith in the program extends to a willingness to readily recommend it to others:

The autism group had an email shooting out and somebody said what therapies are there out there?...Well, somebody mentioned the riding. They weren't real sure, they just knew it was out at the Horse Park and didn't know much about it. And ...nobody else had responded...And my comment back was that we really enjoy it. It's been a very positive experience for him...for all of us.

Executive Director Pat is regularly called upon to advocate the CKRH program to potential applicants:

Well, even as just the executive director of this program...I would start off by telling them chances are we can help in some way...I cannot think of one of our autistic patients that hasn't achieved some benefit from this. That just cried and cried and cried and then went home. (Laughter). I cannot think of...one student that had a horrible outcome or a non-successful outcome. Now...the attainment of goals for each individual, some may have been lower than others, but...progress was made, I think. I would feel very comfortable telling that to a new parent coming into the program.

As Program Director, Denise provides details on both the typical parental reaction and also on the gradual desensitization approach that has provided for many successes, especially with the initially-reluctant client:

A lot of what I hear is a surprise. In particular, speaking directly to individuals who are...on the more severe end of the autism spectrum. So maybe they're non-verbal...behavioral issues, the hitting, the pinching...those types...The high level of fear...and a lot of them call over the telephone and say, "I was told that I should try this, but I just don't know. You just don't understand...I don't even know that I can get him or her there and what is your process"...and I said, "Come, let's try...We will start with what we have and we will start out walking around, find out how accepting the individual is of all of the sensory input and then we will work our way from there...and there has been multiple occasions where we started with just walking the center. And we spent...three weeks

walking. Every week we would come in and for 30 minutes we would just walk the center...The center being CKRH...We weren't anywhere near a horse...we just started out walking through the barn and so we smelled smells and we had sights and we just processed that...and then we...we would walk by the pastures, nowhere near the horse, but so that we could see a horse. And then each week we would get closer and closer to a natural horse until we were...introduced...and then the next six weeks we spent...only working around the horse because we weren't getting on...and then eventually...we moved towards getting on the horse and...so that was the plan. Most often, and in those cases in particular, what I see is just total surprise and amazement [from the caregivers]...for your study that would be...Jan and John...that we worked through that plan with. And I think it is—it was just total surprise and amazement and disbelief really...I don't think...in either case, the families ever really thought that these individuals would be riding a horse.

Benefits to family.

Toilet training.

As discussed in physical benefits, three parents credited the therapeutic riding program with their children's progress in toilet training, which may certainly be considered a benefit to caregivers as well, as Executive Director Pat as articulates, "...just learning to sit up and ride the horse is so huge. But when that child is able to sit on the potty it's a life change for the families."

Activity family can do together.

Positive effects of the therapeutic riding program sometimes extend in a more direct way to family members other than the child who is participating riding. Gary's grandparents regularly transport him to his lessons, and although they are not familiar with horses themselves, they provide encouragement and support, as his grandfather notes, "We're not professionals in this...we're his cheering section." Executive Director Pat is aware of multiple family members simultaneously enjoying the lesson time while at the Kentucky Horse Park, where the riding facility is located:

And we have had comments from parents where if the husband and wife are both here with the siblings...maybe the wife stays [at CKRH] and the hubby takes the two kids down into the Horse Park and gets them one-on-one time without the child who gets most of the attention because of the needs, so the siblings are down in the park and spending some good time on the playground or looking at horses with dad. And so that's a good quiet...break.

As the parent of two program participants, Doug and Brian's mother is grateful for the opportunity for multiple sibling involvement:

And I...really enjoy the fact that...the boys can do something together, even though they're not in the same class...I enjoy that and...it gives them a little bit of a bond together and...so it's been a great experience...I'm a single parent and...one of the kids' and my daughter's as well, highlights of the year is the...Christmas party that they have.

Both Steve's mother and sister have become CKRH volunteers, providing an outlet to the horse-crazy sister as they assist in the barn with horse care and lesson

preparation, as his mother laughingly relates, “I am becoming a horse person...my daughter loves horses and...always has and so she was excited to get to come help...Since she didn’t get to ride...she’s got her own thing. She gets to groom the horses and...she loves it...” Meghan’s grandmother describes her work as a volunteer for the Kentucky Horse Park, caring for horses in one of the barns and interacting with Park visitors, with which Meghan can readily identify, “Oh yes, she thinks that’s perfect and...the sun was in her eyes and I had an old Horse Park cap there in the car and I got it and put it on her and she just thought that was really special.” As a horse lover, Wayne’s mother had been eager to have her son try therapeutic riding even before their move to Kentucky:

We’d just moved down here in the summer of ’06. And...I saw that they had CKRH...And this was something I’ve always wanted to do with Wayne because...I’m a horse person...I just thought it would be fun...and maybe it would be really good for him because I’ve seen how it...and heard how it’s helped...

Sibling issues; child has own activity.

Maintaining balance with appropriate attention and activities fairly distributed among siblings can be a challenge for any family, but even more so within a home that contains a child with special needs. The topic of sibling rivalry was first raised during the instructor focus group when Mary reported the pride of one sibling saying, “Ooh—I get to take riding lessons,” with Alan supplying the logical completion to that line, “I can ride better than my brothers and sisters.” Five parents referenced comparisons among their children, including Bob’s mother, “[Bob] knows his brother plays sports...So...this

is his thing...this is Bob's." Meghan's grandmother echoes this sentiment, "...this gives her something, too...her brother is real good in sports and all this stuff. He might be younger but he's really good in all that...so this gives her something too..." Kerry has been taking gymnastics lessons for over three years, but his younger brother shows greater prowess in that activity. His mother feels Kerry's success in therapeutic riding helps him cope with this disparity, "And, of course his little brother is in the same class...and he's...doing it all over the place. But...[Kerry] doesn't get frustrated anymore, like he used to...but this he knows he does well." Steve's mother has attempted to provide equilibrium between brother and sister:

...his sister...actually works in a barn here on Wednesday nights...she's involved in a lot of stuff outside and has been pretty successful at things that she's done and...since Steve doesn't do anything...he feels like he doesn't get the same amount of praise as what his sister does. So...this is his thing and he's proud of it.

Robin's mother has dealt with the same problem in a slightly different manner:

His sister usually comes with me and...it just kills her to watch him on this horse because she wants to do it too. And it's the one thing we keep special for him. She's got ballet and gymnastics and I'm always saying, "Sharon, this is something that's special he gets to do." And he just saddles up. He's not afraid. And she's tried to get on a horse before and was scared to death.

Summary

The current study elicited a wide variety of data related to perceived benefits of a therapeutic riding program for children diagnosed with autism spectrum disorders.

Reported gains in cognitive processing included an increased ability to maintain focus and attention during riding lessons, which in turn augmented skills in following multi-step directions. Repeated exposure to the novel sensory stimuli associated with the CKRH facility triggered new coping mechanisms for both hypo and hyper-sensitive clients. Class exercises and activities led to improved thought processing and subsequent gains in overlapping physical skills such as spatial awareness and motor planning. Deep pressure input, the movement of the horse, and increased motivation were credited with many gains including expanded vocabulary and use of language. The opportunity to participate and become proficient in a non-competitive physical activity such as horseback riding while improving acuity in gross and fine motor skills, strength and endurance is important for children with ASD who may be precluded from other sporting pursuits by their hallmark social limitations. Reported outcomes of particular significance to this population include decreased self-stimulating behaviors and progress in toilet training. Many caregivers noted decreased apprehension and enhanced physical prowess that carried over into other activities of daily life. Increased interaction, communication and the opportunity to practice appropriate social behaviors are among the most noteworthy triumphs for individuals who display the classic social deficits of autism spectrum disorders. Children in the therapeutic riding program are more motivated to form bonds with both humans and horses, which in turn promotes a greater feeling of acceptance and an appreciation of how one's actions affect the behavior of another being. The indefinable quality the horse contributes to the intervention provides a catalyst to help bridge the gap in human relationships. Modification of inappropriate behaviors, learning to deal with changes in routine, and the calming effect of therapeutic

riding are extremely valuable outcomes for children with ASD who experience frequent temper tantrums or meltdowns. Pride, confidence, and a sense of internal locus of control gained through achievement in a challenging activity enhance self-concept in children who often have limited avenues for success. All family members interviewed emphasized the importance of their children having an enjoyable activity that is *theirs* to look forward to that brings happiness to the child. Finally, the qualitative methodology produced a unique glimpse into the personal journeys of the family members of children diagnosed with ASD. Always seeking effective treatments for their children--often armed with limited knowledge or professional guidance--family members find comfort and support in a welcoming environment that understands the unique challenges of their children. The normalizing experience of therapeutic riding affords them an uncommon opportunity to take pride in the accomplishments of their children and provides a welcome respite from their daily struggles in the less-hospitable outside world.

Chapter Five

Summary, Conclusions, Discussion, and Recommendations

The purpose of this study was to examine the perceived cognitive, physical, social, and psychological benefits of a therapeutic riding program intervention for children with autism spectrum disorders. The qualitative methodology provided the researcher with a greater understanding of the particular experiences of the intervention that could potentially help maximize the physical, emotional, and social health of this population, rather than what could be captured with standardized instruments. The research design utilized multiple methods to gain an in-depth perspective of the program's effects on subjects presenting primarily with ASD. Three focus groups and two personal interviews were conducted with riding instructors, class volunteers and staff members of the therapeutic riding program at Central Kentucky Riding for Hope (CKRH), located at the Kentucky Horse Park in Lexington, Kentucky. Semi-structured interviews were also conducted until saturation was reached with 22 parents or related caregivers of 15 children diagnosed with autism spectrum disorders who were enrolled in classes at CKRH in the eight-week fall session of 2008. Records such as client registration forms containing medical information, initial client evaluation forms, and instructor lesson plans and evaluations were also reviewed by the researcher.

This chapter is organized according to the recommendations of Cottrell and McKenzie (2005). The chapter initially presents a summary of the results of this study presented in Chapter Four. Following the summary, this chapter presents the conclusions of the study followed by a discussion of the findings and recommendations for implementation and further research.

Summary

The impact of disability affects individuals in a variety of ways, but persons with disabilities share many of the same challenges to optimal health and wellness. The federal mandate of Healthy People 2010 (United States Department of Health and Human Services, 2010) encourages efforts to increase quality and years of healthy life and to eliminate health disparities among different segments of the population, including Disability and Secondary Conditions. Many interventions that target optimal health, well-being, and participation in life activities are relevant to all persons with disabilities. Noting an increase in disability rates among youth, however, Healthy People 2010 illustrates the particular importance of providing appropriate health promotion and prevention of secondary conditions for this age group, with the ultimate objective of achieving and sustaining a level of physical and mental wellness that encourages a fullness of life.

At this time, there is no cure and no single accepted treatment for ASD (National Institute of Health, 2010), and affected children have both increased health concerns and a susceptibility to develop secondary conditions. Emotional distress caused by environmental barriers that limit the child's ability to participate in life activities can contribute to a decline in both physical and mental health. This combination of factors necessitates a continuous need for appropriate programs within a community that can help maximize these children's overall physical, social, emotional, and social health status.

Horseback riding is considered by many to be merely a recreational or sporting activity, but increasing numbers of riding centers devoted to the therapeutic value of this

activity speak to the long held belief that greater benefits may be reaped from the almost mystical attraction horses have always held for man. There are two types of equine therapy involving mounted work: *hippotherapy* and *therapeutic riding*. The horse serves only as a treatment tool in hippotherapy (Hamill, Washington, & White, 2007), which is considered a medical intervention and must be provided by a physician or a licensed physical or occupational therapist. Therapeutic riding, in contrast, requires the rider to learn the basics of guiding and controlling his or her mount, with the long term goal of independent riding if possible (Haehl, Giuliani, & Lewis, 1999; Hamill et al., 2007). Equine therapy programs accredited by the North American Riding for the Handicapped Association (NARHA) provide services to over 42,000 persons with a wide variety of disabilities, including ASD (NARHA, 2010). Proponents of therapeutic riding are quick to provide lists of potential benefits for persons with a range of disabilities, but research support for these claims over the past two decades has remained scarce and is primarily limited to studies of physical benefits for riders with cerebral palsy. There have been few peer-reviewed studies on the effects of therapeutic riding for ASD, which is reportedly becoming one of the largest populations served in riding programs. Psychosocial benefits derived from therapeutic riding have received little focus within any population. Small sample size and heterogeneity due to variances in age, sex, and severity level of symptoms among subjects have often limited consistent demonstration of positive effects, although even small improvements that traditional measurement tools might not be sensitive enough to detect can have major practical and psychological significance for participants and their families.

Conclusions

Cognitive benefits.

Cognitive abilities include skills such as focus, attention to task, comprehension, language development and the ability to make decisions and solve problems (Edelman & Mandle, 2002). Cognitive development and learning ability can be augmented by sensory and motor stimulation as well as proper nutrition (Murray et al., 2009). Children with ASD often exhibit high levels of capability in certain areas of intellectual functioning (Sadock & Sadock, 2003), while performing poorly in others (American Psychiatric Association, 2000), notably regarding the use of language. Individuals may display either hypo- or hypersensitivity to sensory stimuli. Appropriate therapeutic interventions for children with autism spectrum disorders therefore often target appropriate sensory and motor stimulation as well as cognitive skill development (American Psychiatric Association, 2000). While the literature regarding cognitive gains from equine therapies mentions language skills only, this study reported many references to perceived cognitive benefits.

Increased processing opportunities.

Nearly all parents or caregivers noted the opportunities provided by the therapeutic riding class lessons that incorporate exercises and tasks requiring cognitive effort into the main riding skill drills. With information from medical histories, lesson plans are designed to focus on each individual's targeted needs, such as the ability to follow 2-step directions or language skills. As one mother describes, "...this program...gives him an opportunity to try to apply some things that he's working on very specifically in speech and in OT and in PT and it just kind of pulls that all together."

Instructors and class volunteers readily recognized improvement over time in their clients' abilities to follow directions from the instructor and perform sequential tasks such as picking up a ring from a bucket on one barrel and successfully maneuvering their horse to another barrel where they place the ring over a traffic cone.

Sensory input.

The fact that the therapeutic riding facility provides a wealth of unique sensory stimulation for its clients was stated as a consideration for choosing this program by several parents. Novel sights, sounds, and smells as well as the many tactile sensations presented by the riding equipment, lesson props, grooming tools, and the horse's coat and movement were considered a particular advantage for the children. While some clients have unusually high thresholds of pain that could put them at risk for injury, it is more common for clients with autism to become over-stimulated, often resulting in emotional outbursts or tantrums. One girl was initially overwhelmed with the sensory experience, "...she could not come in the end of the barn...she was terrified of animals, any type of animal. The sounds, the whinnying and...the activity of the barn, she wanted no part of that; that just overloaded her." Accordingly, instructors must sometimes employ a gradual desensitization approach when introducing the client to the facility and the horses, perhaps only walking the grounds while gradually moving closer to the horses over time. Wearing a helmet is a requirement for class as well as a particular challenge for riders with ASD, so instructors regularly find creative solutions to handle helmet refusal, such as sending a helmet home to allow the client to practice wearing it. Small introductory steps typically led to surprising accomplishments, as expressed by one

father, "...and then this...victory today of actually getting on a live animal, well that started with...we didn't know if she'd ever even put the helmet on."

Motor planning.

CKRH staff, instructors and volunteers shared examples of cognitive processing related to motor planning skills in which the clients learned to execute the correct sequence of movements in order to accomplish a requested task in both non-mounted activities such as grooming the horses or maneuvering their mounts through a variety of class exercises. One father has observed his son's progress from needing verbal directional signals in order to guide his horse in the ring to being able to mentally plot what he needs to do to control and direct his horse to accomplish the overall task the instructor has requested. Another parent who is an occupational therapist observed that her son had become aware of how his movements and posture affected the horse's movement and was learning to control both as he became able to anticipate changes in speed and direction."

Proprioception.

Proprioception, or knowing where one's body is in space, serves as a foundation for development of the balance and coordination required for movement. The client's ability to maintain proper alignment of the body while riding a horse is a learned skill that is crucial to remaining safely atop the animal as it moves. Executive Director Pat pointed out a most practical incentive for clients to develop a sense of personal body placement when working around horses, "...you get too close to a horse and in somebody's space, you might get your foot stepped on or your might get...knocked by the head or something..." One mother credits therapeutic riding with her son's becoming more

aware of this, "...like where his body is in space. He used to just...run into things all the time...he would run into someone and look at them like..." "Why did you run into me?"

Focus.

Seven of the children's family members credited the therapeutic riding program with improved attention, concentration, or focus in their children. As a grandmother observed, "I think...when he's on the horse he concentrates better...the thing to me that's...the most beneficial is that it causes him to focus...to train his mind to focus because that was a big problem."

Following directions.

A desirable therapeutic riding goal for a majority of children in the study is the capability to complete two or three-step commands without prompting from the instructors or volunteers, and lesson activities accordingly include many games and activities that involve completion of many multi-step directions. Most of the children enjoy these mounted games, and their willingness to participate on horseback coupled with their increased focus and attention span allows them to succeed, as described by one mother, "...they basically play...Red Light Green Light. And he just loves that. And it's neat because then he has to watch and pay attention and follow the directions." Another mother has seen improvement in her daughter's ability to follow directions and felt [she] was "...so interested and she's so on task, and she's on the horse and she's got the whole nervous system involved, so that when those directions are given to her, it seems that she is more able to process that."

Language development.

Deficits in language development are classic symptoms of autistic disorders. Although there are no related studies for this population, Lehrman and Ross (2001) described gains in verbalization in a case study of a child with moderate mental retardation and visual impairment following a mounted equine therapy program. Macauley and Gutierrez (2004) described self-reported gains from both a traditional therapy and a hippotherapy program for three boys, aged 9-11, with language-learning disabilities, but stressed that the boys were more motivated to participate in the hippotherapy program and discuss it with their friends. Although data regarding general communication skills are discussed in the social benefits section, it was notable in this study that four nonverbal children were reported to speak either their first words or meaningful sentences during a therapeutic riding lesson. According to Executive Director Pat, in one of these situations, the child's first spoken sentence was, "I love you, Annie," referring to her horse. An aunt was told by her nephew's speech therapist that the horse's motion would promote his speech, and she considered this to be one of the major benefits of the program, "...and he's increased his vocabulary in the last year. I mean it's just amazing...And we know it's from the horse therapy. We know it."

Effect of horse's movement and deep pressure.

One recurring theme throughout the data refers to the perceived effects resulting from the unique sensory stimulation of the horse's movement and the *deep pressure* experienced by the rider when mounted on the animal. Many subjects felt these sensory experiences fulfill an innate need in the child with autistic disorders and can effect both cognitive and behavioral gains. One father described his son's transformation from

tantrum meltdown to total relaxation when he climbs aboard his horse. Although his son initially had difficulty with tactile sensitivity, one father later reported that he loves to ride, and seems to crave the deep impact the horse provides, “I think it goes back to...his sensory integration needs...because...to ride on the horse, especially at the faster paces, you’re going up and down and you’re bouncing and you’re getting deep pressure all up and down through the trunk...”

Physical benefits.

During normal child development, a reciprocal effect exists between attainment of physical and cognitive skills. Maturation of the brain is required for all factors that allow for motor growth such as sensory perception, balance, coordination, focus and memory. In turn, physical development stimulates expansion of cognitive abilities. Although physical deficits are not considered defining symptoms of ASD, lack of interest in interactive play at a young age and social withdrawal that restricts participation in physical activity as an older individual can result in a lifestyle that is lacking in appropriate levels of exercise and physical activity that contribute to optimum health. Therapeutic goals for several of the children in this study included enhancement of physical abilities.

Opportunity for physical activity.

One key word used by several parents was *participation*. Therapeutic riding provided a novel and enjoyable physical activity in which their children could take part, as many were not involved in any other sporting pursuit. One grandmother felt her granddaughter would likely not comprehend the theory of typical sports games well enough to play effectively, and besides that, “she’s not going to be picked for a team...”

Gross motor function.

Proper development of balance, strength and coordination are prerequisites to the acquisition of gross motor skills such as walking and running that are used in daily functioning. Riding class activities such as mounting and dismounting, standing up and balancing in the stirrups, swiveling in the saddle to face four different directions, and learning to center oneself in the saddle after leaning or reaching for an object during an exercise are designed to hone such basic abilities. Improvement in the clients' core strength, muscle tone, balance, flexibility, and posture were all noted in the data. One instructor linked the importance of core strength to verbalization and thus to communication skills, which are particularly significant for children with ASD.

Fine motor skills.

Proper development of gross motor movements provides the foundation for acquisition of fine motor skills such as grasping objects or handwriting. MacKinnon et al (1995) found significant increases in grasping skill of subjects with cerebral palsy in a therapeutic riding program. Riders must maintain a grip on the bridle reins with their hands to help control the horse's movements, and common activities routinely require the manual selection of objects such as balls and rings that will at some point be carried, placed or tossed. The riders may also be asked to reach forward and attach or remove colorful hair clips to the horse's mane. They may manipulate various brushes and combs if assisting with grooming their mounts in the barn, or help buckle and unbuckle the horse's tack, or riding equipment. One mother whose son had a very immature hand grasp noted improved strength in his grip that would promote his handwriting skills. An instructor explained how these acquired competencies can readily be transferred to

functional life skills for children with autism, as one parent illustrated, "...he can now unbuckle the buckles on the saddle. That directly relates to the buckle on his belt. The fine motor skills directly correspond to...the Velcro on his shoes..."

Endurance.

Individuals who are not physically active typically lack endurance to resist fatigue and maintain exercise at an appropriate level. One mother had witnessed her son's progress in this area, "...he used to get very, very tired...he's always had very low endurance, but then in the first few classes, he'd make it out there maybe 20 minutes. And now he can go a full hour."

Toilet training.

An important milestone in child development is toilet training, but delays in toileting are commonly reported in children with autism spectrum disorders. Three parents reported their children were much more aware of their need to eliminate soon after dismounting from their riding lesson, which substantially affected the general training process. One mother credited the novel stimulation, "...her pressure sitting on the seat is the only time that she was ever aware of any sensation...she would get off and you could see that she was uncomfortable and that's how we started."

Decreased "stimming" behaviors.

Classic symptoms of ASD include repetitive or stereotypical behaviors, commonly referred to as *stimming* (stimulation) by parents, instructors, volunteers and staff. Movements such as hand-flapping, toe-walking, hand-biting, or eyelash-pulling were frequently reported by family members of the subjects in this study. One family member noted marked improvement in her nephew's ability to stand quietly and wait for

his horse to approach the mounting block to begin the lesson, without repeatedly slapping his hands against his sides. Another noted a regression to these behaviors when her daughter was not riding during the winter months. Instructors theorized that the horse's movement may satisfy an innate need for additional sensory stimulation in these children, as one teacher described a jumping, hand-flapping student who readily modifies that behavior when the horse is asked to walk at a faster pace, "...when they're looking for that sensory input, *they* don't have to move; the horse does it for them."

Riding skills.

Beyond stated therapeutic gains, attainment of the skills needed to become a more effective rider was commonly observed by instructors, volunteers, and family members. As discussed in the psychological benefits section, progress in specific capabilities required by this discipline, just as in any sporting activity, typically exerts a major influence on psychological variables such as confidence, achievement, and pride, not only for the individual but also for the family and supporters.

Overall physical well-being and transfer of skills to daily living.

Ten family members in this study referred to gains in overall physical well-being for their children resulting from participation in the therapeutic riding program. Some felt the proficiency gained in therapeutic riding encouraged their children to become more physically active in general, and one mother felt the improvement in her son's physical conditioning allowed him to focus more on social relationships. In a study of participants with cerebral palsy in a hippotherapy intervention, Casady and Nichols-Larsen (2004) utilized the Pediatric Evaluation of Disability Inventory (PEDI) to find significant gains in total PEDI scores reflecting functional performance in the home and

community. In their qualitative study of adults with schizophrenic spectrum disorders, Bizub, Joy, and Davidson (2003) found themes reflecting skill mastery and conquering of fears of riding that carried over into new activities, as well as positive effects of exercise on sleep, relaxation, and an overall sense of well-being following the subjects' participation in a therapeutic riding program.

Five parents in the current study spoke to their children's sensory concerns related to aspects of physical activity that caused them to be hesitant in motor movement, fearful of heights or of being off the ground. Some had previously been afraid to navigate stairs, climb a ladder, or go down a slide, but displayed much less reservation to do so following their experience in therapeutic riding. One mother described how amazed she had been to watch her son, who had always been afraid to join his peers in a fast food playland, suddenly climb into the heights of the structure following the completion of his first full therapeutic riding program session. Another commonly expressed theme involved the children's enthusiasm for riding which motivated them to comply with recommended therapeutic exercises much more readily than in their traditional occupational or physical therapy interventions.

Social benefits.

Development of appropriate social skills that allow individuals to successfully interact with others has a major impact on present and future mental health and level of functioning. Children who experience supportive, nurturing relationships with family members and peers are more likely to develop an ability to empathize with others and properly interpret social cues as they learn to play and work together effectively. Age-appropriate language skills naturally affect the ability to communicate with greater ease.

Deficits in social interaction are one of the most classic features of autism spectrum disorders. From a young age, children with ASD may avoid direct eye contact, lack interest in imaginative or interactive play, and fail to develop the ability to take the perspective of others, which prohibits the development of empathy. Difficulties in the use or interpretation of both verbal and nonverbal language further restrict the individual's social facility. A resulting lack of friendships with peers and general social isolation can negatively affect the attainment of optimal emotional health.

Social isolation.

Family members in this study described younger children who have no friends or playmates, and adolescents who spend all of their free time alone in their rooms.

Although he has made much progress, the oldest participant's (age 23) mother recalled past years when she could not force him into a new social situation, "He couldn't handle birthday parties, even his own...we'd try to give a birthday party for him and have to take him home...he'd be the only one not there..." As a teacher of children with disabilities, she added this insight, "...I find it with so many of them that social isolation tends to exacerbate their problems."

Increased social opportunities and interactions.

The therapeutic riding program provides ample opportunities for the clients to actively interact with not only the horses, but also instructors, volunteers, classmates, and family members of classmates. In the only published study on therapeutic riding for children with autism, Bass, Duchowny, and Llabre (2009) utilized the Social Responsiveness Scale to measure social functioning and found significant results in the area of social motivation, but not in social cognition and social awareness.

Depending on his or her level of experience, each child rides with a *team* at CKRH that may include a horse leader and one or two sidewalkers who serve to help maintain balance and stability while also reinforcing the instructor's commands. The consistently positive outreach of the staff and volunteers creates a supportive environment that is very welcoming to the clients, which they do not always experience in other situations. Comments from family members such as, "His biggest challenges are in the social area," or "Social [progress] has surprised me most of all" spoke to the significance of the facility's endeavors. Family members were often pleasantly surprised at bonds their children formed with special instructors or volunteers. One mother remarked that in some periods of her son's life, CKRH was the only place where he socialized with anyone. Class activities are often structured to foster awareness of and encourage interaction with classmates, as in passing objects from rider to rider or performing as a team for a relay race.

CKRH also hosts non-riding events such as holiday parties for the clients, which provide an atypical venue in which to practice appropriate social behavior among familiar individuals. The organization's annual fundraiser, *Night of the Stars*, has also successfully included several of the clients with ASD as riders who present their mounts in the auction ring in front of a large audience during the bidding process for sponsorship funds.

Increased communication.

Encouragement of appropriate client communication is a crucial component of the therapeutic riding class protocol for children with ASD. Efforts are made to establish reciprocal eye contact that is relatively easier, especially with very young children, as the

mounted child is seated closer to the eye level of the sidewalkers. Instructors and volunteers remarked on the progress of clients who would initially refuse to make any eye contact, and eventually might even occasionally share a smile. An instructor shared her unique experience with one child who suddenly became fascinated with his miniature horse's eyes, "...he just looked...at the mini's eyes...and he said, 'Eyes. Eyes.'...And he touched the mini's eyes...That was huge; that was life-changing for this individual. And in that case, I know it *did* transfer over to humans."

Efforts in verbal communication are routinely reinforced by encouraging each rider to ask his horse to "Walk on" or "Whoa" before the horse's leader assists them in controlling the animal. Children are often more motivated to communicate as part of an enjoyable task or game in which they enjoy participating. Volunteers noted the necessity of a bathroom visit as another conversational motivator for clients. Some parents credited the personalized, focused attention each child receives with eliciting greater communication. Volunteers are trained to keep instructions short to allow clients to more readily process commands. One mother of a child who had not previously spoken much outside of the family recognized her son's additional motivation to communicate his fears and his needs during one of his first riding classes, "...I heard him say, 'Walk on.' I thought, 'Oh my gosh!' And so I was sobbing watching him on this horse...because I didn't think he was going to do it." There were reports of children speaking their first words or complete sentences during a lesson. One mother began to cry when she was told that her daughter had described a rubber ring as "purple" to a volunteer, as the girl had never before verbalized the names of colors.

Children who are particularly interested in the horses themselves can readily find welcoming ears of others who share their passion at the riding facility. Some children talk about their riding experiences or the horses outside of the CKRH facility. One boy goes home after each lesson, helmet in hand, and talks to his neighbors about his horse.

Although horses do learn to understand vocal commands, they are instinctively more responsive to nonverbal cues such as squeezes from the rider's leg or pressure on their heads or mouths from the bridle and reins. Effective riders must learn to communicate with their animals in this manner and they must also become proficient in interpreting the horse's body language, including ear positioning or facial expression, in order to correctly anticipate behavior and interpret the animal's response to rider commands. This allows the rider and the horse to perform successfully together in a partnership while also remaining safe from injury. Instructors commented on the horse's ability to provide immediate feedback to the signals provided by the rider. Clients must learn, as one father remarked, "...he's now getting the sense that it's... not like your car...It's not something where you just sit down and it goes...there's another being there." This provides an opportunity for the child to establish a relationship with the horse, which, as one mother explained, can be a novel experience for a child with ASD, "...sometimes it's hard for him to make that kind of...connection...with people, with horses, animals...because their communication skills are so awkward, and not very skilled."

Fit in as part of a team.

Interpersonal bonds are often formed when one becomes an accepted member of a group of any type, but the characteristic social limitations of a child with ASD can

severely limit this type of association. Instructors indicated the facility attempts to address this need by providing each child a consistent team of supportive volunteers with whom the child can become comfortable. Participation with others from the same riding class in activities such as the CKRH fundraiser, *Night of the Stars*, can provide a common experience that could potentially be shared in a peer relationship. Although children with ASD may not typically be affected by peer pressure, this common developmental construct may play a positive motivational role when members of a riding class work as a unit to encourage reluctant individuals to participate fully in class activities.

Learn to trust others.

Learning to place trust in another individual is an essential aspect of relationship-building, and it is crucial that clients develop trust in their instructors and their team members as they hone their riding skills, particularly if they are initially reluctant or frightened. One girl who exhibited extreme fear in her early lessons had been brought along very gradually and was eventually able to mount a horse for the first time. Her instructor believes the progress that has been made is due to their shared positive rapport and the client's trust in her teacher. A male student doubted his own capability to compete in the Special Olympics, but Program Director Denise recalled that his instructor convinced him to enter. The young man told his mother, "'Well Alan must really believe that I can do this'...and then he goes to Special Olympics and he wins a gold medal!...Alan believed that he could do this...and he transmitted that and he did it."

Forming bonds and relationships.

Deficits in social interaction skills often restrict the child with ASD from establishing meaningful personal relationships outside of the family. Some of the

younger children in the therapeutic riding program were reported to display little interest in playing with peers and making friends, and one older client has on occasion exhibited aggressive behaviors, possibly due to his frustration at only having one or two valued personal relationships in his life. Not uncommonly, however, the children form attachments with caring instructors or volunteers. Instructor and volunteer teams, as well as the horse, are carefully matched to clients based on individual needs and personality, and every effort is made to maintain the continuity of the group to foster familiarity. When team member substitutions do become necessary, it can upset the child with ASD who relies heavily on established routines.

Bonding with instructors and volunteers.

Thirteen of the 15 children's family members described strong attachments with the child's riding instructor. One grandmother made note of the special relationship with an instructor who is able to identify subtle differences in her granddaughter's moods. The same child introduced the instructor's husband as, "And this is my other dad, Doug." Stressing the importance of the comfort level an instructor has with students with autism, a step-mother commented on her step-daughter's singular focus on her own instructor, "...she really doesn't give anybody else much mind. She pretty much focuses on Ms. Mary." Children reportedly were less likely to bond with their team volunteers than their instructors, perhaps due to less direct personal contact or the necessity of rescheduling volunteer team assignments more often over successive sessions. Significant client/volunteer relationships do exist, however, particularly if a volunteer can remain with the same child over time, as in the case of one boy who was matched with the same volunteer for all six of his riding sessions, or if the volunteer makes an especially strong

effort to consistently recognize and converse with the client. One child enjoyed a reciprocal relationship with a volunteer who always provided enthusiastic encouragement. After relating her son's continual efforts to please this volunteer, his mother confided, "And I thought, 'This is the first time he's had a relationship with another adult that's not my husband or me'"

Bonding with classmates.

Although the riders do not have as much direct contact with their classmates as their team members and instructors, several parents noted some degree of interaction with their riding peers, such as two girls who greeted one another with a hug. One client was excited to recognize a former schoolmate in his riding class and regularly made a point of greeting both the peer and his father. Another child made some friends when he was placed in a class with riders closer to his own age than in his previous class. There were instances where children who shared a common bond through their riding classes spent time together outside of class as well.

Bonding with horses.

Beyond human relationships, perhaps the most unique aspect offered by the therapeutic riding intervention is the opportunity to form a partnership with the horse itself. The horse is non-judgmental and excels at reading the nonverbal language of his handlers, and as each client learns to correctly interpret the horse's reactions to his or her cues, he or she is constantly challenged to supply the next appropriate cue required to successfully maneuver the horse as instructed in this reciprocal relationship. Variability exists concerning the riders' degree of attachment to their mounts, however. Some are very fond of their animals while others seem to appreciate the horses only for the

experience they provide. Some children refer to their mount as *their* horse when away from the facility. One rider apparently appreciated the role his horse played in his victory at the Special Olympics, as he asked to go back to the barn after the competition so he could pet his horse and have their picture taken together with his medal. Another client initially refused to compete in the Special Olympics after he was told his regular mount that he trusted could not be used for the event. Some riders overcame an initial fear with careful instructor management. One boy who was terrified of horses at first was later observed to demonstrate true affection to his equine partner, “And ...one day he broke loose from [the volunteer] and ran over and just hugged Socie himself, without being instructed to. He wanted to do that.”

Family members valued the unique opportunity the therapeutic riding intervention offers to help their children learn to deal effectively with an animal. As one mother commented, “I would say that it’s good for kids, young adults...different than soccer because you’re dealing with another live creature and that gives you some sort of...a connection,” and another expressed her hope, “...just the relationship between the child and the animals...I think that will carry over into...his relationship with kids and people in general...”

The magic of the horse.

While family members acknowledged several qualities of the horse that attract their children to this type of intervention, the subjects who work directly with the animals suggested the existence of an indefinable quality the horse possesses that cannot be replicated with a human or any other animal. According to one instructor, “...there’s a connection that the horse and the rider have...that people don’t even have with each

other...” Some theorized that a stronger bond is formed when an interactive training relationship exists between horse and human. Riders may demonstrate close associations with their mounts, but in many instances horses have also been observed to show a special affinity for the children they are carrying. In describing one normally sour horse whose attitude, facial expression and movement is transformed for one client only, the child’s instructor stressed, “...there’s a certain magic and a certain energy between certain people and certain horses...” Another instructor feels one of her lesson horses can be relied upon to alert her to a student experiencing difficulties, “if his...rider is starting to go off balance, Red stops...if Red even thinks that his rider is uncomfortable...he gets this furrowed-brow look on his face; he’s just so concerned...it’s written all over his face...” From the perspective of the horse handlers, the relationship between client and horse is a two-way street.

Practice appropriate social behaviors.

While children with ASD may typically lack the innate consideration for others that provides a natural basis for standard social graces and courtesy, they can learn to implement conventional social conduct through modeling and repetition. An instructor pointed out that at the end of each lesson the students are asked to thank their volunteers and their horses, and give their horse a pat. Family members were grateful for their children to be routinely encouraged to look directly at and greet people. One mother pointed out that in other settings, “...if he doesn’t say it, well then we just move on, but...out here...they don’t walk the horse on until he says, ‘Walk on,’ because they know he’s capable of saying ‘Walk on.’” One client whose initial inclination was to regularly

punch both his team and his horse with his fists was eventually redirected with success to more appropriate behavior.

Horses or humans?

There is interaction at the CKRH program between both clients and other people and clients and horses. Is one type of relationship more effective, or is each one necessary for the success of this intervention? One instructor summed up the thoughts of several relative to the overall goals of the therapeutic riding program, “The fact that we’re talking about the human relationships, to me is...a huge success, and that speaks to the horse, because...we’ve got the activity with the horse that has brought us up to the human interaction.”

Psychological benefits.

Erik Erikson’s theory of personality development (Edelman & Mandle, 2002) was utilized to organize the many constructs relating to psychological benefits that were presented in the data. As an individual ages, maturation occurs at variable rates in the general categories of sense of self, self-control, initiative, moral development, and industry. Children with ASD do not necessarily follow these same developmental patterns and often display abnormal behaviors and social deficits (American Psychiatric Association, 2000; Sadock & Sadock, 2003) that could cause adjustment problems and preclude optimal emotional health.

Self-concept.

Confidence.

The development of positive self-concept begins in the first two years of life and continues on through adolescence (Berk, 2004), and is affected by a great number of

variables. Parents of 11 children associated gains in confidence with the therapeutic riding program. “He thinks he’s bigger than the world...he rides a horse and no one else he knows rides one, so he’s got one up on everybody,” reported one mother. The ability to carry newly-developed confidence into other areas of life may be the most significant benefit.

Independence.

Three parents referred to their children’s gains in independence through the program, and instructors frequently mentioned a common desire for students to aspire to more independent riding “in Alan’s class,” a more advanced class. One instructor described an instance where one non-verbal rider repeatedly appeared to assert her desire for greater autonomy by reaching down and attempting to disrupt the side walker’s handhold on her thigh. The therapeutic riding experience was also favorably compared to team sports in providing the opportunity for greater self-sufficiency.

Pride.

The therapeutic riding program provides external recognition and the positive feedback that helps to promote a sense of pride (Beck, 2004) that was noted by family members of seven of the children. A mother had observed upon their arrival home after a lesson, “...he’ll have his riding helmet in his hand and he will tell every neighbor that is outside...that he was riding his horse. So he loves it and he thinks he’s big stuff.” After congratulating her daughter on a particular accomplishment following a lesson, her step-mother described her reaction to the compliment, “...it was the kind of look you get from a kid that feels like, ‘I deserve that. I’m proud of myself too.’ I’d never known her capable of that emotion and I saw it in her face.”

Achievement.

Self-concept is also bolstered by a sense of capability and competency gained through personal achievement, which was observed by 11 family members. One boy was able to earn a horsemanship badge in Boy Scouts. Because their children typically have fewer potential pathways to success available to them, family members feel the value of each triumph is magnified. “These are the high points in her life, because she’s not going to have...academic achievements. She’s not going to have any...athletic achievements. She’s not going to go to college...” One mother was especially cognizant of the program’s potential benefits as she recalled her son’s plaintive, “‘Mommy, I’m such a loser,’ because...no matter how hard he tried to win a race or...play basketball...he always lost...how horrible for a child that, no matter how hard they try, they always come in last. And here...he’s good at it.”

Self-esteem.

Beck (2004) defines the concept of self-esteem as self-evaluation of personal value or worth in academic, physical or social realms. Positive self-esteem is a most crucial precursor to overall psychological adjustment and thus directly affects patterns of behavior. Due to the characteristic limitations of this condition, development of a sense of social worth can be especially problematic for children with ASD. Six family members reported gains in this area with comments such as, “There has been nothing else I have ever seen that has made her feel as good about herself, I don’t think.” One instructor’s encouragement to compete in the Special Olympics inspired one client to tell his mother, “Mom...somebody thinks I can actually do something right...I guess maybe I am...good at something.”

Locus of control.

Internal locus of control refers to an individual's belief in his ability to direct his own actions and take credit for his own successes (Edelman & Mandle, 2002), rather than be manipulated by external forces beyond his control. Instructors, volunteers and staff members, as well as seven family members, testified repeatedly to the powerful effect derived from an individual learning to take charge of his horse and exert some degree of control over the animal, as explained by a volunteer, "Well, any time you can get a kid up on a horse and let him think he's in control of a situation, where a lot of times he's just completely out of control...it gives him a lot of support." Even the unique perspective provided by the relative size of the horse can play a role in the heightened sense of command, "...they're sitting in a world up above the world now...looking down at everybody else, and they feel like maybe they have some control over their lives that they don't have in their normal day to day existence."

Empowerment.

Empowerment can be defined as an enabling process through which an individual gains a generalized sense of control over his life and his environment (Glanz, Lewis, & Rimer, 1990). Individuals with ASD are not typically in charge of their own lives, but Executive Director Pat spoke to the potential for development of both personal control and command over the horse that "gives a real sense of empowerment...to children, and makes a focus outside of themselves." One instructor depicted the children as having things routinely done to them and decisions made for them, until, "...you put 'em on a 1200-pound animal and go, 'O.K., you're the boss.' Hugely empowering..."

Self-care.

Activities such as personal grooming and dressing contribute to self-concept in the younger child, but children with ASD often display little interest in such self-care. Unanticipated yet valuable transfer of personal care skills appeared to be motivated from an interest in assisting with care of their horses, “So he was brushing the horse and helping with bathing. Well the next thing I know, he’s at home all day looking in the mirror, brushing his own hair...He had never done that before,” or “...he starts learning to buckle and unbuckle because he really wanted to help with the saddling of his horse and hanging up the saddle. And the next thing I know, he’s buckling his own buckle.”

Emotional self-regulation.

The ability to control emotions and reactions to environmental stimuli begins to emerge in the first two years of life and continues into early childhood (Berk, 2004; Murray, Zentner & Yakimo, 2009). Because children with ASD commonly exhibit sensory hypersensitivity and a range of inappropriate behaviors, self-regulation can remain a major challenge to the acquisition of functional social skills as they mature.

Control of emotions and overcoming fear.

Children must learn to evaluate perceived threats and respond appropriately. Failure to modify irrational fears can sometimes restrict the ability to achieve constructive goals. Four of the children in the study overcame fear of the facility environment or the horses themselves before they could progress, usually with the help of a carefully planned gradual desensitization approach. According to his aunt, one boy experienced a reversal in his reaction to animals in general after learning to accept his therapy horse, “...before we started, he wouldn’t touch any animal...We have...seen such

a big difference in...how he relates to animals...when I see that I know it's from Socie. It's from his involvement with an animal.”

Less inappropriate behavior.

Eight family members and numerous instructors and staff members emphasized the use of the horse as an important component in the combination of strategies designed to reduce the number of inappropriate behaviors and meltdowns so often displayed by clients with ASD. Several examples were given in which structured behavioral plans developed with family members were successfully utilized by instructors and volunteers when outbursts occurred during class. In most cases, being allowed to remain in class and continue riding the horse was the strongest motivator to a productive resolution. The most impressive victory may involve the behavior modification with the boy who initially hit his mount with his fist 103 times during the 30 minute lesson.

Calming effect.

Although modification of less desirable behaviors often takes time, a notably immediate calming effect related to riding was also reported by family members of six children as well as volunteers and instructors. In crediting this as the biggest bonus for her child, one mother related, “he just kind of sinks into the horse...He can be real hyper and he gets on the horse and...you can physically see him...just kind of melt.” Another mother also referred to the somewhat tranquilizing effect on her son following “...a really rotten day...being physically aggressive or just off the charts. And he gets on the horse and we go home and it's...just like a typical, typical kid, even keel, focused, does what he needs to do, and happy...” Some theorized that the movement of the horse is responsible for such transformations, as one mother conveyed, “...autistic kids have

things that they do to calm. Like when [he] gets upset, he'll rock...he likes that movement. That helps him calm. And...so the movement of the horse...maybe mimics...his self-stimulating..." and another mother expanded on the premise that there is "...something inherently wonderful about a horse... and a horse's ability to help children...and it's something about their movement or something...just in their nature that is just...relaxing, calming...and therapeutic."

Transitions.

Growth in self-control also includes the ability to deal effectively with change, which is very difficult for children with ASD who are notoriously dependent on a strict routine. Five parents related experiences that had created obstacles for their children, such as changes in instructors, team members, or horses, and even a forced detour to the riding facility through an unfamiliar entrance to the Kentucky Horse Park. The children's motivation to participate in their riding classes enabled them to overcome their discomfort in each case, however, and possibly to transfer that achievement to other areas, as one mother shared, "...he normally wouldn't like things that are outside of his routine or what he's accustomed to, but being able to do the riding, I think it interests him enough to try something different outside of his comfort zone."

Initiative.

The concept of initiative involves the emergence of learning, determining plans of action, assertiveness, and dependability beginning in early childhood (Murray et al., 2009). As the children gained confidence and greater acuity in their horse handling skills, they were much more capable of taking charge of their animals and completing

assigned tasks or maneuvers with limited supervision from instructors and team members.

Moral development and responsibility.

Children traditionally learn morally-relevant behaviors through imitation of others and positive reinforcement (Berk, 2004) that will ideally evolve into the acquired traits of trustworthiness and responsibility. Beyond teaching riding skills, instructors and volunteers also emphasize proper treatment of the animals that make that experience possible. A father appreciated his son's growth in this area, "...he's now getting the sense that...it's not like your car...where you just sit down and it goes...you have to maintain it and...there's another being there...that needs care as well...And some responsibility involved with it...so it's been wonderful."

Industry.

The construct of industry includes values required for achievement such as task mastery, perseverance, and the ability to problem-solve (Berk, 2004; Murray et al., 2009). Experiences that allow for acquisition of these traits encourage the individual to continue to pursue additional challenges.

Challenge.

In order for goals to be rewarding, they must be both desirable and achievable. The therapeutic riding environment provides challenges that are carefully structured to be increasingly difficult yet attainable for each client. One mother noted her son's progress in skill levels through several riding sessions, "...he gets better each time, so I think they want to challenge him and give him a horse that will challenge him a little more." Another mother pointed out that children with ASD "...may be less likely to try new

things or be in new situations, so something that motivates...that's very good for them to be in a new place...and be challenged to do things beyond their comfort zone.”

Task mastery.

Specific objectives are formulated and instructor evaluations are recorded in CKRH lesson plans for each individual. Four family members remarked on their children's progress in task mastery. One father noted his son's progress in the past year, “...he's really...moved beyond just riding to really trying to learn the skills and ‘Whoa's’ and stops and starts and rights and lefts and leading and steering the horse...he's really blossomed his skill sets...” One mother was appreciative of the staff's concern for her son's continued advancement, “So I think he's actually going to become a rider now, rather than just...doing...mostly I think therapeutic skills.” Instructors and staff mentioned the strong motivation for clients to sufficiently master the basic riding skill so they can be assigned to “Alan's class,” where they can ride more independently.

Participation.

Children with ASD classically demonstrate limited interest in participation in activities that could provide opportunities for enhanced achievement, task mastery, self-concept, and identity formation. Nine family members spoke to the significance of their children's involvement in therapeutic riding. A father confessed, “...one of my struggles, emotionally, had always been that she has enough structure and programming in her life outside of school...having an event every week to look forward to...it's one more thing to make her life that much more full.” A mother echoed that sentiment concerning programming for her son, “...this has been the one constant that he's always looked

forward to...very little has kept him off the horse.” Opportunities to take part in the Special Olympics or the CKRH fund raiser, *Night of the Stars* were also mentioned.

Identity formation.

Excelling in a relatively uncommon sport that requires a high level of skill can make a positive contribution to identity formation. Nine parents emphasized the importance of children with ASD having an interest or activity that is *their thing*, as described by one mother, “He owns it...I think most kids [with ASD] face the same thing [he] does. They feel like outsiders and that they don’t fit in.” Although some of the children displayed an obsessive interest in horses, a girl’s mother was surprised to find that riding became “...the first time she had shown an interest in...something besides...immediate family. [Or] an inanimate object.” The fact that horseback riding is a rather unique pursuit only strengthens the effect, as another mother declared, “...he gets up there and stands like a jockey and he wants to do it and he’s good at it and his peers are not...he does something that they’re not able to do...”

Enjoyable activity that makes child happy.

For a therapeutic activity to be not only beneficial but also fun for the child as well was considered an obvious bonus. Every family interviewed referred to therapeutic riding as an activity that their child enjoys very much, whether horses are a personal obsession or just provide an enjoyable experience as well as therapeutic intervention. This interest was especially notable to family members because their children are not typically attracted to many hobbies or pastimes, “...so for him to get excited about something was a big deal...He got on the horse the first time and just didn’t want to get off...he loves it.” Another boy’s reaction is similar, as his mother describes, “...he’s

excited in the car on the way here, he's excited while he's here, and he's excited on his way home...it's an overall...love of his." Caretakers often find it difficult to motivate their children to get prepared to leave for an outing, but no one reported an issue with the riding lessons, with even the less verbal children readily assembling the necessary clothing or equipment when the trip to the Horse Park was announced. The opportunity to ride the horse at the increased speed of the trotting gait regularly produces big smiles and frequent gales of laughter from the riders, as related by a volunteer, "They get so happy. They laugh...some of them laugh so hard they can't catch their breath. And to see that kind of happiness in those children...it puts them on an even playing field, or not necessarily even, maybe up."

Family benefits.

An unexpected consequence of the current study was the collection of data related to the multiple benefits received by parents and caregivers as a result of their children's participation in the therapeutic riding program. Personal insights into the challenges of raising children with autism spectrum disorders were also considered valuable.

Parental challenges.

The diagnosis of autism spectrum disorders.

Family members described subtle early symptoms such as language delay or lack of personal response and interaction that caused them to initially suspect ASD and to eventually seek medical evaluation. Some family members were often understandably tempted to attribute such signs to other conditions than ASD. Interestingly, parents were sometimes met with resistance from their children's physicians to provide a referral for early intervention or further testing. One pediatrician's response when speech therapy

was requested for a child was, ““Oh no, you don’t want to do that. That will be just too emotionally scarring for him,” to which the mother replied, ““...you know what’s really emotionally scarring is that he talks to kids and they don’t understand him and they walk away.””

When a referral for further evaluation was obtained for a child, the waiting period could be as long as 12 months. The mother of the oldest child in the study (age 23) received the diagnosis twenty years ago with little encouragement for any type of treatment at that time from the neurologist, who warned her that her son would probably be institutionalized as an adult. Although there is now a much greater awareness of this condition, there is still a lack of knowledge or recommendations for coping skills that leads to frustration for caretakers.

Reaction to diagnosis and grief issues.

Parents and family members shared their initial reactions to the diagnosis of autism spectrum disorders, “...we were in grief, I think initially, once we realized what the condition was,” from a grandfather of a 4 year-old, or “The grief cycle never ends; you just continue to face new challenges, new developments as your child ages,” from the mother of a 23 year-old. Commonly repeated themes included the dismay experienced by family members at the incomprehensible reversal of their children’s apparently normal development at an early age, followed by a gradual transition to acceptance of the condition and its “roller coaster ride” with hope for the future. But there is no steady path to improvement.

Reactions of outsiders.

Symptoms of ASD are not always consistently apparent or readily identifiable. Family members are often subjected to judgments from unenlightened strangers with no understanding of their children's aberrant behavioral issues, as described by a grandmother, "...I remember these people walking by and saying, 'You need to wear her out'...and...I thought to myself, '...You're just ignorant. You have no concept.'"

Proactive riding instructors spoke to the need for heightened awareness and empathy for this condition within the general public. Program Director Denise introduced the concept of victim blaming when she acknowledged a more predictable sympathetic reaction to an obvious physical disability versus that directed at a less familiar mental health condition that may be misinterpreted as a simple lack of discipline on the part of the parents. "...So there's a lot of blame...there's a lot of expectation of if you did this differently...you would behave differently...you must be a bad parent. You must not be disciplining your child...or they wouldn't be behaving this way.

Frustrated, proactive parents have searched for effective interventions.

Despite a dearth of information and recommendations for the treatment of ASD, all family members interviewed for this study were unconditionally devoted to the pursuit of appropriate interventions for their children. A riding instructor described, "...so many times and so many different places, they're fighting a system. They're fighting to get in the school systems...they're fighting with the insurance companies to get them to pay for services; they're fighting, trying to obtain services." The mother of two boys with ASD expressed her frustration, "There's no handbook out there...that says... 'Hey, gosh, you ought to try this, this, this, and this, and here's their websites or here's their phone

numbers' ... You're just kind of left to ... find your way, and that's too bad." One mother has found her most reliable sources are peers who share the same issues because, "...the schools don't tell you and doctors don't necessarily know, even. So...it's by word of mouth." With little guidance available, some parents feel their only option is to become very proactive and coordinate their child's treatment plan themselves. One mother interviewed for the study is also a preschool teacher who was surprised to find her formal education courses were of little benefit in this regard, "...it was...a shock to me to find out that...they haven't figured out...exactly how to teach children with these disabilities, and I was just horrified."

The support and dedication of family was evident in all cases. "We're always trying to think of new things...I just felt like it was our obligation to expose her to this and to give her a chance to see what she could do," or "We're just trying and struggling to get her whatever it takes...to try to help her...when you have a child like that...you're grasping for any and everything ...that you possibly can." One mother enrolled her son in therapeutic riding even before he was diagnosed, "...if somebody told me that it might work, I went for it...You...chase down the therapies and the recreational things that...keep him functioning."

Goal is best life for child to "be all they can be."

At this time there is no known cause and no known cure for autism spectrum disorders, so parents and family members try to address the symptoms and set realistic goals for their children. One grandmother anticipated social acceptance, "...we have a lot of hope for him to...fit in," while a mother set an age-specific goal, "I want to give him an opportunity to fully explore...being an 11 year old." The many sacrifices these

parents and family members make on a daily basis were clearly evident, as well as the motivation to do so, "...as his mother I feel like it's my responsibility to give him the best life I can... You grit your teeth and you do what you have to do." As a child walked back from the riding ring following his lesson, his mother smiled proudly and said, "because...of course you want to do everything you can for your own child...I just want my son to be happy, and to be able to function in life."

Benefits to parents.

Normalizing activity / more typical child.

"It normalizes something in their life.....When they're on horseback, when their parents look across, they're like every other child on horseback. They're just taking a riding lesson." One instructor has viewed therapeutic riding as a chance for children with ASD to take part in a more typical children's activity. Four parents agreed with this assertion, as one mother explained, "Other kids play...t-ball...and so it gives him that ability to do what a typical child does." Another parent was especially cognizant of her daughter's more conventional experience at CKRH, as she had an older son with a condition similar to autism that "never fit in anywhere."

See child achieve.

The therapeutic riding program offers not only a chance for the child with ASD to experience a sense of achievement, but for family members to witness this success in a challenging activity. The researcher was fortunate to observe an overwhelmingly joyous reaction during an interview with both parents as they witnessed their daughter mounting her horse for the first time. The step-mother expressed her joy, "I mean she has far surpassed...anything we thought her capable of," and the father agreed, "And in ten

sessions...if you had told me she'd be leading a horse around on her own and mount one, I would have said you're crazy."

As Program Director, Denise derives personal satisfaction from helping to provide this opportunity for the families of children with ASD to witness their children's small victories, when they are more accustomed to being told that their children are not capable, "...to watch their child...succeed...is for me...a very...awesome experience because...a lot of people see...their son makes the touchdown or...a lot of parents see it on a regular basis, where for some of our parents, this is...where they see it." Executive Director, Pat was rewarded for her decision to include clients with ASD as participants in the annual public fundraiser, *Night of the Stars*, as parents had explained to her, "...we're just so grateful that she got to be queen for the night, or he got to be king of the mountain...[we could] go out there and applaud and...take a real sense of pride in the accomplishments."

Pride in child / limited opportunities for participation or success.

Parents who have witnessed their children's achievement also expressed the feeling of pride in their accomplishments. The Special Olympics equestrian competition held each fall at the Kentucky Horse Park provides an additional occasion for the children to shine, beyond their weekly riding classes, and extended family can take part in the experience. One father whose son was chosen to compete remarked, "...he's going to be a shining example for CKRH and I'm very proud of him." As Executive Director, Pat receives "a gazillion" phone calls from family members poring over details such as selection of proper apparel for these events.

Makes parents happy.

The therapeutic riding program elicits happiness not only in the riders, but also in their supporters. Volunteers are particularly aware of such reactions in the family members, as Shirley noted, "...you can look over there for one hour and see the parents grinning from ear to ear and watching their kid ride." Jo Ann enjoys talking with parents between classes, "I have yet to hear a parent who is not happy that their kids are here." Serving as both Program Director and as an instructor, Denise has a great deal of interaction with family members, "...and then the next thing that I see...is just the satisfaction and the pride and the amazement that, 'Wow, my child can do this.'" One mother would recommend the CKRH riding program even if it didn't provide the therapeutic interventions, "I see my child so happy every time...and the excitement just in his little body...I would still be just as ecstatic, but to...have him love something so much, to get therapy on top of it is so exciting."

Supportive environment.

Caregivers are relieved to be able to place their children under the care of patient, knowledgeable and capable instructors and volunteers during each trip to the CKRH facility. One instructor recalled a compliment from one mother on the patience she had displayed with her daughter, "...I got the very distinct impression...that...a lot of people...rushed her...didn't take time to let her process and sequence all of her events...and I think...that's one thing we all have in common here." Family members also praised the ability to accept the riders' limitations and help them to reach their potential. The mother of a boy with very aggressive tendencies was especially grateful, "...even when he gets explosive...they all handle it very appropriately and nobody gets frustrated with the fact

that...they've just been socked in the head again..." A mother of two sons at opposite ends of the autism spectrum values the supportive environment which includes the staff's willingness to treat each child as an individual, "the folks here are just so adept at...truly trying to measure each child, and how can we help...[each one] along...you don't have to worry about if your kid's doing something strange...you know you're welcomed here."

Caring for a special needs child can require a significant input of energy from all family members on a daily basis. One unanticipated consequence of a therapeutic riding lesson for family members is, "...it also gives the parents a break." One mother had recently discussed the advantage of having "adult time" in which they can share stories with two of the other parents, "...oh my gosh, I can relax; I don't have to worry about what's going on with...my special need child...so it's just nice to be able to sit for an hour...just...relax and not have to worry about him taking off.

Throughout the data collection, evidence emerged to suggest that the therapeutic riding program offered benefits not only to participants but also to their family members, as one mother testified, "...it is therapeutic in all areas...and it's not just for the child. It's the parents, it's the family..." Another mother depicted a collaboration between the CKRH facility and each child's caregivers, "...you...feel like it's family and you really enjoy that...it's a partnership...I feel like when I come out here...I've got partners, I've got support system, I've got friends, I've got people who understand..." Staff members described the application process that requires a written assessment from parents or caregivers, a medical history from the child's physician, and an on-site evaluation of the child so he or she can be placed in a class situation most appropriate for the stated goals. Only instructors have access to each child's complete file for lesson planning purposes,

but volunteers have now been provided with Rider-at-a-Glance cards that have been developed with input from each child's parents, school teachers and other professionals, and contain the individual's lesson goals and any recommended behavioral plans. Several examples were given to illustrate the effective use of these behavioral plans, involving a variety of scenarios including temper tantrums, helmet-wearing compliance, or the need to follow a consistent routine prior to each lesson to prevent outbursts.

Ongoing communication between CKRH staff, instructors, volunteers and caregivers is considered vital to maintaining an effective therapeutic relationship. Instructors strive to establish a rapport with parents or caregivers. Volunteers who are in direct contact with the clients during a lesson are especially appreciative of both the Rider-at-a-Glance cards and any useful input or suggestions they receive from family members

Instructors' and volunteers' involvement with the clients sometimes extends beyond the lesson ring. Such close relationships between CKRH personnel and the client's team of supporters allow for a glimpse into the atypical lives of the children's families and the development of a mutual respect, as noted by volunteer Perry, "...I don't know what goes on at their homes...but just to see them...I think the parents of these children are really special as well. I mean they have to be."

Beyond the relationship established between the CKRH facility and the children's caregivers is the informal family support network created simply through the gathering of family members during the children's lessons. One mother supported that concept, "It's therapy for everybody...There's a lot of networking that goes on...In that hour of time where your kid's on the horse and you're sitting there...I have gotten so much

information. So much.” Executive Director Pat further elaborated on the phenomenon informally referred to as the “picnic table support group, “...a lot of things happen at the picnic table...as parents are watching the lessons...they start to really share...resources...it’s everything from soup to nuts, but it’s a resource...I think a lot of the best stuff is at the picnic table.”

Parents give back as volunteers.

Some parents derive satisfaction from volunteering in the CKRH program, as one mother explained, “... it’s rewarding to me to be able to help kids like [my son].” A father feels his years of experience with his son can help him make a meaningful contribution, “...I’m tickled just to be able to give back and come up with something that might help other kids.”

Program exceeded expectations.

Parents and caregivers of 11 of the 15 children stated that the therapeutic riding program had exceeded their initial expectations. One student overcame his sensory sensitivity to the extent that the family could finally have a puppy. Other clients realized more dramatic turnarounds, such as the mother who had low expectations following her son’s physical attacks on staff members during his initial evaluation, but reported a very positive experience for him. Program Director and instructor Denise summarized the typical reaction of parents of some of the more behaviorally-challenged clients following a careful introduction to the riding intervention, “...what I see is just total surprise and amazement...that we worked through that plan...I don’t think...the families ever really thought that these individuals would be riding a horse.”

Family members frequently recommend the program to other parents. One mother favorably compared this activity to other therapies they have tried, "...I just didn't dream of all the things that would improve...after all these years of therapeutic interventions." Another parent felt parents of children with ASD may be unaware of the extent of services provided by the therapeutic riding program, feeling it is designed only for children with physical disabilities.

While recognizing that not all clients achieve the same level of success, Executive Director Pat tells caregivers of children with ASD that there is a good chance they can be helped in some way as she recalled, "I cannot think of one of our autistic patients that hasn't achieved some benefit from this."

Benefits to family.

Toilet training.

Parents of three children reported gains in toilet training they credited to the therapeutic riding experience, which is discussed in more detail in the physical benefits section. However, success in toileting can also be considered a benefit to other members of the household, as Executive Director Pat acknowledged, "...just learning to sit up and ride the horse is so huge. But when that child is able to sit on the potty it's a life change for the families."

Activity family can do together.

Caregivers conveyed ways in which the therapeutic riding program experience could become a shared family experience. In some cases, one parent stays with the child at the lesson ring while the other parent spends time with the siblings on the grounds of the Kentucky Horse Park. One mother signed herself and her horse-crazy daughter up as

CKRH volunteers so the daughter could be involved while her brother rode. The mother of two sons enrolled in the program appreciates that the brothers can share this experience, “And I...really enjoy the fact that...the boys can do something together...it gives them a little bit of a bond together...so it’s been a great experience...” The boys’ sister also regards the CKRH Christmas party as one of the year’s social highlights.

Sibling issues / child has own activity.

Dealing with sibling rivalry can be even more challenging in a household that includes a special needs child. Five parents commented on the issue of achieving a balance, including Robin’s mother, who described her daughter’s reaction watching her brother in the riding classes, “...it just kills her...because she wants to do it too...it’s the one thing we keep special for him.” The mother whose daughter volunteers in the CKRH barn reports, “...she’s involved in a lot...and has been pretty successful and...since [her brother] doesn’t do anything...he feels like he doesn’t get the same amount of praise as what his sister does. So...this is his thing and he’s proud of it. A grandmother echoed this sentiment, “...her brother is real good in sports and all this stuff...so this gives her something too...” One boy has to compete with his more capable younger brother in gymnastics class, but his mother thinks his success in riding has helped him deal with that performance disparity, “[He] doesn’t get frustrated anymore, like he used to...this he knows he does well.”

Discussion

Physical aspects of disability for individuals diagnosed with cerebral palsy have received the most attention in the limited research regarding the benefits of equine-assisted therapies. Although MacKinnon, Noh, Laliberte, Lariviere, and Allan (1995)

found no significant results in quantitative measurements of gross motor function in subjects with cerebral palsy in a therapeutic riding program, qualitative measures described steady progress in the areas of core strength, strength, balance, and seated posture. Both Sterba, Rogers, France, and Vokes (2002) and Cherng, Liao, Leung, and Hwang (2004) reported significant increases in Gross Motor Function Measure (GMFM) scores following a therapeutic riding intervention for subjects with cerebral palsy. In a study of subjects with developmental delays, Winchester, Kendall, Peters, Sears, and Winkley (2002) demonstrated significant improvement in GMFM scores in a therapeutic riding program.

Although finding no significant increases in GMFM, health, or quality of life measures for subjects with cerebral palsy participating in a therapeutic riding program in 2008, Davis et al.'s qualitative data from primary caregivers focusing on quality of life supported a recommendation for further research that would analyze the impact of that intervention on a child's overall function. Initially citing two animal-assisted therapy studies for children with ASD that demonstrated increased use of language and social interaction in the presence of live dogs, Bass, Duchowny and Llabre (2009) presented the results of the first study of social functioning for children with ASD in a therapeutic riding program. Utilizing quantitative measures of sensory processing as related to social function, significant results were noted in areas of sensory sensitivity and integration, directed attention, decreased inattention and distractibility, and social motivation.

Extensive anecdotal evidence of the many purported favorable outcomes of therapeutic riding programs has promoted the enrollment of ever-increasing numbers of children with ASD whose caregivers hope will profit from this intervention, but peer-

reviewed support for this type of treatment is nearly non-existent. The researcher's academic interest in both animal-assisted therapies and effective community interventions that contribute to optimally functional health coupled with experience as an equine professional and therapeutic riding program volunteer encouraged a focus on this topic of research. Inherently small sample sizes and heterogeneous populations have plagued many previous quantitative studies in this area. Realizing those typical sample limitations would also influence the current study, a qualitative approach was selected to elicit a more in-depth, *lived experience* perspective and a greater amount of data involving previously-unexplored variables that could potentially generate a broader foundation for future examination. Clients in this study who were enrolled at CKRH varied considerably in age and length of therapeutic riding experience, however, and most participated in other interventions that could also present confounding variables to the assessment of benefits received from therapeutic riding. The family members who were interviewed were very proactive in seeking appropriate interventions for their children, which may have predisposed them to expect positive outcomes in such activities. The number of class volunteers who responded to the invitation to participate in the study's focus group was disappointing, but could possibly be explained by the fact that confidentiality issues preclude them from knowing the diagnosis of clients they assist. They may feel less knowledgeable and less able to contribute valid information than the instructors, or they could be reluctant to share any negative attitudes that would reflect poorly on the riding facility.

As previously discussed in Chapter Two, appropriate interventions for children with ASD should include an emphasis on social and daily living skills, language and

communication, play and leisure skills; academic achievement; and reduction of maladaptive behaviors (Myers & Johnson, 2007). Therapies should be structured to improve attention, engagement, reciprocal interaction, and communication, and should encourage social motivation and foster self-awareness and self-esteem in a nurturing, enjoyable environment that intersperses new skill acquisition with prior-mastered skills while reinforcing positive behaviors (White et al., 2006). Interventions should place particular emphasis on the profound deficits in social reciprocity skills that are the main source of impairment for those affected, no matter what the level of cognitive or language abilities (Ruble, 2001; White, Keonig, & Scahill (2007). The acquisition of organizational skills such as following directions and task completion coupled with the ability to respond to appropriate motivational strategies can help prepare the child for classroom success (National Research Council, 2001). The primary goals of therapy are to maximize the child's ultimate functional independence and quality of life in the realms of education, family life, and the community while minimizing core features of autism spectrum disorder (Myers & Johnson, 2007; National Research Council, 2001).

The data from this study reported a wide variety of perceived gains across all targeted domains of cognitive, physical, social, and psychological functioning and in nearly all recommended therapeutic categories as well. Results also generated an emergent theme involving benefits afforded to family members beyond those provided to the children enrolled in the therapeutic riding program. Improvement in cognitive skills such as sensory processing, focus, attention, and the ability to follow directions as well as increased social interaction and relationship-building support the findings of Bass, Duchowny and Llabre (2009). Gains in core strength, balance and flexibility were

reflective of the qualitative data reported by MacKinnon et al. (1995), and gross motor function improvements demonstrated by Sterba et al. (2002), Winchester et al. (2002), and Cherng et al. (2004). Other reported benefits of notable interest that address core limitations of ASD included modification of inappropriate and self-stimulating behaviors, progress in toilet training, expanded use of language, motivation to participate in a therapeutic intervention, and the calming effect elicited by the horse; none of which have been previously described in the literature for therapeutic riding..

The most striking feature presented by the data is the therapeutic riding program's ability to provide assistance in some measure to all participants, regardless of their age, sex, duration of participation in the riding program, or their comparative location on the hypothetical *autism spectrum*, which suggests the degree to which their symptoms restrict the ability to function effectively. Clients differed as to the type of benefits received, but all profited in some way: No negative comments were reported. What core features of this intervention are responsible for this phenomenon? Is it the presence of the horse alone, or is it the combined force of horse and competent humans that enable such apparent successes to take place?

The presence of the horse introduces a powerful motivational factor, although the children seem attracted to the animal for a variety of reasons. Some children seem drawn to sensory factors such as the horse's movement or the deep pressure experienced while sitting in the saddle, while others may enjoy the opportunity to interact with a non-judgmental entity. Perhaps there are intangible connections that are difficult to identify, as one instructor suggested, "...there's a lot in common that our students actually have with our horses...the way they're treated, the way they're trained...The way some people

think horses can't learn...or they don't remember...or they're not intelligent...Or they're all the same." Perhaps the child with ASD senses that people often have preconceived opinions about his abilities and capabilities, "and the horse doesn't have any of that...that horse...doesn't assume that he can't do it; he doesn't assume that he doesn't know what he's doing; he doesn't assume that he doesn't understand...The horse doesn't *know* that they have limitations." Perhaps the child associates the presence of the horse with an awareness of increased personal control or rewarding relationships. Or perhaps the child simply enjoys the fun of bouncing along in the saddle when the horse moves at a faster pace. There is some precedent for the use of animal-assisted therapy in general for children with ASD (Bass, Duchowny, & Llabre, 2009), but the horse -- when used as an intervention incentive -- is truly unmatched in size, behavior, sensory stimulation, and effect of movement. Perhaps there is simply a combination of factors that are impossible to clearly delineate.

Whatever the mechanism, the clients are motivated to willingly participate in a human-guided intervention that complements their co-existing treatments in a novel, supportive, non-competitive, and sensory-laden environment. Interviewees stressed the importance of coupling the horseback riding experience with the positive attitude of the instructors and volunteers, "...if they weren't so friendly and so happy and so willing to help...I don't think the kids would get as much out of it...they make the program...the whole team makes the experience what it is." A theory generated during the instructor focus group suggested that, as people accustomed to successful interaction with the nonverbal horse, experienced horse persons might be inherently well-suited to dealing effectively with children with ASD.

Many caregivers credited the *total package* concept with creating such positive results, stressing that this type of intervention addresses a wide variety of common goals for children with ASD. "...this program is...terrific because it gives him an opportunity to try to apply some things that he's working on very specifically in speech and in OT and in PT and it just kind of pulls that all together," or, "...it's...the social and emotional part of it, the physical part of it...It's just like the whole package and you get it all." Because of the increased motivation, children more willingly participate in exercises and activities that are often quite similar to other interventions that do not equally command their interest, "...it's not like it's therapy...the clinical part is taken out... so it's just the total package...the best that you can roll into a possible situation for therapy...It's better than what you can ever do in a room...doing...OT or PT." "And it gets the child more involved. I really believe that it's more significant if they're getting therapy they don't realize is therapy a lot of times."

While the horse contributes a crucial ingredient to this intervention, his mere presence alone does not insure results. The horse serves as the catalyst that encourages a significant treatment effect in the child. Without the horse, there is less enthusiastic participation. Without the humans, there is no structured intervention. In this program, the horse leads the child to the therapy, allowing appropriate strategies to effect a wide range of potential beneficial changes in the client, including behavior modification, greater social interaction, increased physicality, improved cognitive processing and strengthened self-concept, with a bonus of benefits extending to family members as well. Can the skills attained in the therapeutic riding environment be transferred to other situations? The caregivers say they can.

Recommendations

Through Healthy People 2010, health promotion professionals have been charged with providing increasing numbers of appropriate community interventions for youth with disabilities that can contribute to achieving and sustaining a level of physical and mental wellness that encourages a fullness of life. As the number of children diagnosed with ASD continue to rise with no identified causative agent, the necessity to address this population in particular is obvious. Family members in the current study often reported a lack of readily available information or professional guidance in their search for effective treatments for their children. Suggestions and recommendations are often gained simply by word of mouth from other parents or caregivers of children with ASD. A need for increased awareness of viable community-based programs such as the CKRH therapeutic riding program that address a wide range of symptoms for this population is apparent. The establishment of networks that could assemble and disseminate such information should include public and private schools, local health departments, and occupational, physical, and speech and language therapy centers. And as this study highlighted the program's unexpected yet significant contributions of social support and networking opportunities for family members, the therapeutic riding facility should acknowledge and promote the informal family support mechanisms that are built into the program.

The sample size in the current study is relatively small, although it did include all children diagnosed with ASD that were currently enrolled at CKRH. Differing ages, length of time in the program, severity of symptoms, and concurrent therapies and medications all make the findings difficult to generalize to other populations, and every other facility offering similar programs would differ in lesson structure and the

experience and capabilities of its personnel. However, a greater level of standardization would be found in similar equine programs recognized by the North American Riding for the Handicapped Association (NARHA), the *gold standard* for rigorous evaluation and certification of facilities and instructors in this field. The children in this sample also have the advantage of having very progressive parents and caregivers who take the initiative to locate appropriate therapies and medical treatment, which would not be the case for all children with ASD. However, despite the broad representation of symptoms and stated therapeutic goals in this sample, positive gains were reported for every child.

The researcher no doubt brought a personal bias to the study due to previous experience volunteering in the CKRH program as well as being a career horse person, but these factors were also advantageous towards understanding and correctly interpreting the comments of the participants. Even though family members interviewed were actively seeking useful interventions for their children, they were not typically familiar with horses and riding, and often had indistinct or even dubious outcome expectations upon enrollment in the program. Every effort was made to remain objective and not influence responses to guiding questions during interview sessions. The researcher was actually surprised to receive comments from the family members that were quite similar to those reported by the riding instructors and class volunteers who would share the same potential bias as the researcher.

As was anticipated in the qualitative research design, the data from this study provide a number of suggested avenues for future analysis. Further research on the effects of the movement of the horse and what was referred to as the *deep pressure* sensory experiences provided by the animal on cognitive and sensory processing,

emotional regulation, and toilet training of the child with ASD would seem most vital. The effects of volunteer participation in such programs as well as caregiver stress and coping mechanisms for family members of children with ASD could also prove valuable. Study designs that could isolate the variable of the horse's presence could also prove useful in further clarifying the nature of the animal's role in similar interventions. Quantitative studies with larger numbers of participants more closely matched in demographics and length of therapeutic riding experience that would measure specific cognitive, psychological, and social variables not previously studied but revealed in this data are also recommended.

Appendix A

CKRH Therapeutic Riding Program Research Statement

The purpose of this qualitative study is to examine the perceived benefits of a therapeutic riding program intervention for children with autistic spectrum disorders, with particular focus on benefits that are not being measured with standardized instruments, but that can potentially help maximize the physical, emotional, and social health of this population.

This qualitative study will utilize multiple methods to gain an in-depth perspective on the perceived benefits of a therapeutic riding program for subjects presenting primarily with autistic disorder. Initially, a focus group will be conducted with 4-6 of the volunteer instructors from the Central Kentucky Riding for Hope (CKRH) therapeutic riding program. This interactive group session will provide both an initial overview of the therapeutic riding program for autistic populations and a sampling of the instructors' opinions on the perceived physical, psychological, and social benefits provided to these students and the multiple factors involved in this process.

After compilation of data from the instructor focus group and revision of the initial proposed list of guiding questions, semi-structured personal interviews up to one hour in length will be conducted with CKRH staff members and parents of children diagnosed with an autistic disorder who have been enrolled in a therapeutic riding session at CKRH. Two interviews will be conducted with current CKRH staff members and 15 interviews will be conducted with parents of program clients. Interviews will be scheduled at the CKRH facility during therapeutic riding class times, or at a time and location convenient to the interviewees.

A second focus group will be conducted with 4-6 class session volunteers who work with autistic populations in the CKRH therapeutic riding program. The class volunteers will be asked to provide feedback on general comments solicited during the previous parent interviews.

Following the fall 2008 riding session, brief questionnaires will be administered to the instructors of children whose parents have been interviewed to request their assessment of performance and therapy goals achieved by each of these riders during the session. If a personal interview is not possible, a written questionnaire will be provided for the instructor to complete for each client included in the study.

With parental permission from the initial consent form, specifically-listed records such as client registration forms containing medical information; initial client evaluation forms; client attendance records; instructor lesson plans and instructor session notes will be provided by CKRH to the investigator as needed. These records will afford an additional source for objective data collection.

Margi Stickney
Doctoral Candidate
University of Kentucky Department of Kinesiology and Health Promotion

Appendix B

Recruitment Documents

CKRH INSTRUCTOR RECRUITMENT

CKRH instructors will be recruited for the study via personal contact: in person, by phone, or by email. They will be selected on the basis of their length of experience working with children diagnosed with autistic spectrum disorders, and their availability. Every effort will be made to recruit volunteers who have worked directly with the children whose parents will be participating in the research study. CKRH staff will supply the researcher with a contact list of names of all their instructors who fit this description.

Verbal recruitment will consist of this information:

I am conducting a research study about the perceived benefits of therapeutic riding for children with autistic spectrum disorders. I hope to learn what kinds of physical, psychological, and social benefits can be provided through a therapeutic riding program for children diagnosed with these conditions.

Your participation in this study would help provide valuable insights into the phenomena of the therapeutic riding experience for this population due to your experience teaching children diagnosed with autistic spectrum disorders.

If you are interested in participating, you will take part in a one-time focus group of 4-6 CKRH instructors who work with autistic children. As group facilitator, I will ask several questions to the group to help stimulate interactive discussion concerning the experiences of autistic children in the CKRH therapeutic riding program. The discussion will be tape recorded, and a research assistant may also be present to take handwritten notes. This meeting will be held at the CKRH facility, where a light meal such as pizza and drinks will be provided. Instructors who participate in the focus group will also receive a gas card valued at \$25.00.

At the end of the fall riding session, you will also be asked to complete a brief oral or written questionnaire concerning the performance of any children you have instructed whose parents have been interviewed for this study.

If you choose to participate, I will provide a written consent form for you to fill out prior to the focus group meeting.

PARENT RECRUITMENT LETTER

Dear CKRH Parent:

You are being invited to participate in a research study about the benefits of therapeutic riding for children diagnosed with autistic spectrum disorders. The person in charge of this study is Margi Stickney, a candidate for a doctoral degree in the University of Kentucky's Department of Kinesiology and Health Promotion. She is being guided in this research by her faculty advisor, Dr. Richard Riggs. By doing this study, we hope to learn what kinds of physical, psychological, and social benefits affecting overall health status can be provided by a therapeutic riding program for children with autistic spectrum disorders.

If you choose to take part in this study, you will be one of approximately 15 other parents personally interviewed by the researcher for a single session up to one hour in length during one of your child's scheduled riding sessions at Central Kentucky Riding for Hope, or at a time and location more convenient to you. The researcher will ask you several questions to help you to describe in detail the types of benefits you feel your child gains through participation in the therapeutic riding program at CKRH. You will also be asked to grant access to the investigator for the following CKRH records pertaining to your child: attendance records; initial evaluation forms; registration forms containing medical information; and instructor lesson plans and session notes.

You are under no obligation whatsoever, but if you do choose to participate in this study, we feel your insights and experience with your child's therapeutic riding experience will be an invaluable aid to furthering our understanding in this area. If you wish to join this study, please just read and sign the enclosed Informed Consent form and return it to me in the enclosed, postage-paid envelope. I will then be contacting you to schedule an appropriate interview time.

Thank you in advance for considering this opportunity to assist in this study. If you have any questions, you may reach me at 278-2693, or Dr. Richard Riggs at 257-3645.

Sincerely,

Margi Stickney, M.S.
Department of Kinesiology and Health Promotion
University of Kentucky

CKRH STAFF MEMBER RECRUITMENT

Two CKRH staff members will be recruited for the study in person. They will be selected on the basis of their length of time working with the CKRH therapeutic riding program and their experience with children diagnosed with autistic spectrum disorders.

Verbal recruitment will consist of this information:

I am conducting a research study about the perceived benefits of therapeutic riding for children with autistic spectrum disorders. I hope to learn what kinds of physical, psychological, and social benefits can be provided through a therapeutic riding program for children diagnosed with these conditions.

Your participation in this study would help provide valuable insights into the phenomena of the therapeutic riding experience for this population due to your experience with children diagnosed with autistic spectrum disorders.

If you are interested in participating, you will be personally interviewed by me at CKRH for a single session up to one hour in length at a time convenient for you. I will ask you several questions to help you to describe in detail the types of benefits you feel children diagnosed with autistic spectrum disorders gain through participation in the therapeutic riding program at CKRH.

If you choose to participate, I will provide a written consent form for you to fill out prior to the interview. If you have any further questions about the project, you may contact my faculty advisor, Dr. Richard Riggs, at 257-3645.

CKRH VOLUNTEER RECRUITMENT

CKRH volunteers will be recruited for the study via personal contact: in person, by phone, or by email. They will be selected on the basis of their length of experience working with children diagnosed with autistic spectrum disorders. Every effort will be made to recruit volunteers who have worked directly with the children whose parents have participated in the research study. CKRH staff will supply the researcher with a contact list of names of all their volunteers who fit this description.

Verbal recruitment will consist of this information:

I am conducting a research study about the perceived benefits of therapeutic riding for children with autistic spectrum disorders. I hope to learn what kinds of physical, psychological, and social benefits can be provided through a therapeutic riding program for children diagnosed with these conditions.

Your participation in this study would help provide valuable insights into the phenomena of the therapeutic riding experience for this population due to your experience working with children diagnosed with autistic spectrum disorders.

If you are interested in participating, you will take part in a one-time focus group of 4-6 CKRH volunteers who work with autistic children. As group facilitator, I will ask several questions to the group to help stimulate interactive discussion concerning the experiences of autistic children in the CKRH therapeutic riding program. The discussion will be tape recorded, and a research assistant may also be present to take handwritten notes.

This meeting will be held at the CKRH facility, where a light meal such as pizza and drinks will be provided. Volunteers who participate in the focus group will also receive a gas card valued at \$25.00.

If you choose to participate, I will provide a written consent form for you to sign prior to the focus group meeting.

Appendix C

Consent Forms

Consent to Participate in a Research Study

A QUALITATIVE STUDY OF PERCEIVED BENEFITS OF THERAPEUTIC RIDING

CKRH Instructors

WHY ARE YOU BEING INVITED TO TAKE PART IN THIS RESEARCH?

You are being invited to take part in a research study about the perceived benefits of therapeutic riding for children with autistic spectrum disorders because you are an instructor in the Central Kentucky Riding for Hope program who has experience teaching children diagnosed with these conditions. If you volunteer to take part in this study, you will be one of about 25-35 people to do so.

WHO IS DOING THE STUDY?

The person in charge of this study is Margi Stickney of the University of Kentucky Department of Kinesiology and Health Promotion. She is being guided in this research by Dr. Richard Riggs. There may be other people on the research team assisting at different times during the study.

WHAT IS THE PURPOSE OF THIS STUDY?

By doing this study, we hope to learn what kinds of physical, psychological, and social benefits affecting overall health status can be provided by a therapeutic riding program for children with autistic spectrum disorders.

ARE THERE REASONS WHY YOU SHOULD NOT TAKE PART IN THIS STUDY?

You may not wish to take part in the study

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?

The research procedures will be conducted at Central Kentucky Riding for Hope. You will need to come to CKRH two times during the study. The first visit will take about one hour, and the second approximately half an hour. The total unit of time you will be asked to volunteer for this study is one and a half hours over the next three months.

WHAT WILL YOU BE ASKED TO DO?

You will first be a part of a focus group made up of 4-6 CKRH instructors. The group facilitator will ask several questions to the group. You may choose to respond to any questions you choose, and you may choose not to respond to any questions, as well. The group discussion will be tape recorded, and a research assistant may also be present to take handwritten notes. You may also be asked to complete a brief oral or written questionnaire at the end of the fall riding session for each student you have instructed whose parent has participated in this research study.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

There should be no risk or discomfort in this project. To the best of our knowledge, the things you will be doing have no more risk of harm than you would experience in everyday life. If you find that any of the questions the facilitator asks you are upsetting or stressful, you may simply choose not to answer them, and we can tell you about some people who may be able to help you with these feelings.

One possible risk would be that statements you make could be disclosed to others outside the group. Researchers will closely guard research information and will strongly encourage all participants to keep focus group discussions confidential. However, researchers have no way of ensuring that other participants will, indeed, keep this information confidential. If you choose to participate, you should be aware that something you say in the group could be disclosed to people outside the group.

WILL YOU BENEFIT FROM TAKING PART IN THIS STUDY?

There is no guarantee that you will get any benefit from taking part in this study. However, some people may appreciate the opportunity to share their opinions and expertise on this subject, and to help promote this therapeutic option for other children. Your willingness to take part may, in the future, help society as a whole better understand this research topic.

DO YOU HAVE TO TAKE PART IN THE STUDY?

If you decide to take part in the study, it should be because you really want to volunteer. You will not lose any benefits or rights you would normally have if you choose not to volunteer. You can stop at any time during the study and still keep the benefits and rights you had before volunteering.

IF YOU DON'T WANT TO TAKE PART IN THE STUDY, ARE THERE OTHER CHOICES?

If you would rather be interviewed separately from the group, please let the researcher know and we will make every attempt to accommodate your request. If you do not want to be in the study, there are no other choices except not to take part in the study.

WHAT WILL IT COST YOU TO PARTICIPATE?

There are no costs associated with taking part in the study.

WILL YOU RECEIVE ANY REWARDS FOR TAKING PART IN THIS STUDY?

You will receive a light meal during the focus group session, and a gas card valued at \$25.00 for taking part in this study.

WHO WILL SEE THE INFORMATION THAT YOU GIVE?

Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. You will not be personally identified in these written materials. We may publish the results of this study; however, we will keep your name and other identifying information private.

We will make every effort to prevent anyone who is not on the research team from knowing that you gave us information, or what that information is. Audio tapes and handwritten notes from the focus group session will be stored under lock and key and then destroyed following transcription to written records.

We will keep private all research records that identify you to the extent allowed by law. However, there are some circumstances in which we may have to show your information to other people. For example, the law may require us to show your information to a court. Also, we may be required to show information which identifies you to people who need to be sure we have done the research correctly; these would be people from such organizations as the University of Kentucky.

CAN YOUR TAKING PART IN THE STUDY END EARLY?

If you decide to take part in the study you still have the right to decide at any time that you no longer want to continue. You will not be treated differently if you decide to stop taking part in the study.

WHAT IF YOU HAVE QUESTIONS, SUGGESTIONS, CONCERNS, OR COMPLAINTS?

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions, suggestions, concerns, or complaints about the study, you can contact the investigator, Margi Stickney at 278-2693, or her faculty advisor, Dr. Richard Riggs at 257-4635. If you have any questions about your rights as a volunteer in this research, contact the staff in the Office of Research Integrity at the University of Kentucky at 859-257-9428 or toll free at 1-866-400-9428. We will give you a signed copy of this consent form to take with you.

Signature of person agreeing to take part in the study

Date

Printed name of person agreeing to take part in the study

Consent to Participate in a Research Study

A QUALITATIVE STUDY OF PERCEIVED BENEFITS OF THERAPEUTIC RIDING

CKRH Parent

WHY ARE YOU BEING INVITED TO TAKE PART IN THIS RESEARCH?

You are being invited to take part in a research study about the perceived benefits of therapeutic riding for children with autistic spectrum disorders. You have been asked to take part in this research study because you have a child enrolled in the Central Kentucky Riding for Hope therapeutic riding program who has been diagnosed with this condition. If you volunteer to take part in this study, you will be one of about 25-35 people to do so.

WHO IS DOING THE STUDY?

The person in charge of this study is Margi Stickney of the University of Kentucky Department of Kinesiology and Health Promotion. She is being guided in this research by Dr. Richard Riggs. There may be other people on the research team assisting at different times during the study.

WHAT IS THE PURPOSE OF THIS STUDY?

By doing this study, we hope to learn what kinds of physical, psychological, and social benefits affecting overall health status can be provided by a therapeutic riding program for children with autistic spectrum disorders.

ARE THERE REASONS WHY YOU SHOULD NOT TAKE PART IN THIS STUDY?

You may not wish to take part in the study.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?

The research procedures will be conducted at Central Kentucky Riding for Hope. You will need to come to CKRH one time during the study. This visit will take about one hour. The total unit of time you will be asked to volunteer for this study is one hour over the next three months.

WHAT WILL YOU BE ASKED TO DO?

You will be personally interviewed by the researcher for up to an hour during one of your child's scheduled riding sessions at CKRH, or at a time and location more convenient for you. The researcher will ask you several questions to help you describe in detail the types of benefits you feel your child gains through participation in the therapeutic riding program at CKRH. The interview will be tape recorded, unless you prefer that it not be. You are also being asked to grant access to the investigator for the following CKRH records pertaining to your child: attendance records; initial evaluation forms; registration forms containing medical information; and instructor lesson plans and session notes.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

There should be no risk or discomfort in this project. To the best of our knowledge, the things you will be doing have no more risk of harm than you would experience in everyday life. If you find that any of the questions the facilitator asks you are upsetting or stressful, you may simply choose not to answer them, and we can tell you about some people who may be able to help you with these feelings.

WILL YOU BENEFIT FROM TAKING PART IN THIS STUDY?

There is no guarantee that you will get any benefit from taking part in this study. However, some people may appreciate the opportunity to share their opinions of their child's experiences in this program, and to help promote this therapeutic option for other children. Your willingness to take part may, in the future, help society as a whole better understand this research topic.

DO YOU HAVE TO TAKE PART IN THE STUDY?

If you decide to take part in the study, it should be because you really want to volunteer. You will not lose any benefits or rights you would normally have if you choose not to volunteer. You can stop at any time during the study and still keep the benefits and rights you had before volunteering.

IF YOU DON'T WANT TO TAKE PART IN THE STUDY, ARE THERE OTHER CHOICES?

If you do not want to be in the study, there are no other choices except not to take part in the study.

WHAT WILL IT COST YOU TO PARTICIPATE?

There are no costs associated with taking part in the study.

WILL YOU RECEIVE ANY REWARDS FOR TAKING PART IN THIS STUDY?

You will receive tokens of appreciation such as fast food coupons and horse-related stickers for your child for taking part in this study.

WHO WILL SEE THE INFORMATION THAT YOU GIVE?

Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. You will not be personally identified in these written materials. We may publish the results of this study; however, we will keep your name and other identifying information private.

We will make every effort to prevent anyone who is not on the research team from knowing that you gave us information, or what that information is. Audio tapes and handwritten notes from the focus group session will be stored under lock and key and then destroyed following transcription to written records.

We will keep private all research records that identify you to the extent allowed by law. However, there are some circumstances in which we may have to show your information to other people. For example, the law may require us to show your information to a court. Also, we may be required to show information which identifies you to people who need to be sure we have done the research correctly; these would be people from such organizations as the University of Kentucky.

CAN YOUR TAKING PART IN THE STUDY END EARLY?

If you decide to take part in the study you still have the right to decide at any time that you no longer want to continue. You will not be treated differently if you decide to stop taking part in the study.

WHAT IF YOU HAVE QUESTIONS, SUGGESTIONS, CONCERNS, OR COMPLAINTS?

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions, suggestions, concerns, or complaints about the study, you can contact either the investigator, Margi Stickney at 278-2693, or her faculty advisor, Dr. Richard Riggs at 257-3645. If you have any questions about your rights as a volunteer in this research, contact the staff in the Office of Research Integrity at the University of Kentucky at 859-257-9428 or toll free at 1-866-400-9428. We will give you a signed copy of this consent form to take with you.

Signature of person agreeing to take part in the study

Date

Printed name of person agreeing to take part in the study

Name of [authorized] person obtaining informed consent

Date

Consent to Participate in a Research Study

A QUALITATIVE STUDY OF PERCEIVED BENEFITS OF THERAPEUTIC RIDING

CKRH Staff member

WHY ARE YOU BEING INVITED TO TAKE PART IN THIS RESEARCH?

You are being invited to take part in a research study about the perceived benefits of therapeutic riding for children with autistic spectrum disorders because you are a staff member of Central Kentucky Riding for Hope who has had experience with many children diagnosed with autistic spectrum disorders. If you volunteer to take part in this study, you will be one of about 25-35 people to do so.

WHO IS DOING THE STUDY?

The person in charge of this study is Margi Stickney of the University of Kentucky Department of Kinesiology and Health Promotion. She is being guided in this research by Dr. Richard Riggs. There may be other people on the research team assisting at different times during the study.

WHAT IS THE PURPOSE OF THIS STUDY?

By doing this study, we hope to learn what kinds of physical, psychological, and social benefits affecting overall health status can be provided by a therapeutic riding program for children with autistic spectrum disorders.

ARE THERE REASONS WHY YOU SHOULD NOT TAKE PART IN THIS STUDY?

You may not wish to take part in the study

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?

The research procedures will be conducted at Central Kentucky Riding for Hope. You will need to come to CKRH one time during the study. The visit will take about one hour. The total unit of time you will be asked to volunteer for this study is one hour over the next three months.

WHAT WILL YOU BE ASKED TO DO?

You will be interviewed by the researcher for up to an hour. The researcher will ask you several questions to help you describe in detail the types of benefits you feel children with autistic spectrum disorders gain through participation in the therapeutic riding program at CKRH. The interview will be tape recorded, unless you prefer that it not be.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

There should be no risk or discomfort in this project. To the best of our knowledge, the things you will be doing have no more risk of harm than you would experience in everyday life. If you find that any of the questions the interviewer asks you are upsetting or stressful, you may simply

choose not to answer them, and, we can tell you about some people who may be able to help you with these feelings.

WILL YOU BENEFIT FROM TAKING PART IN THIS STUDY?

There is no guarantee that you will get any benefit from taking part in this study. However, some people may appreciate the opportunity to share their opinions and expertise on this subject, and to help promote this therapeutic option for other children. Your willingness to take part may, in the future, help society as a whole better understand this research topic.

DO YOU HAVE TO TAKE PART IN THE STUDY?

If you decide to take part in the study, it should be because you really want to volunteer. You will not lose any benefits or rights you would normally have if you choose not to volunteer. You can stop at any time during the study and still keep the benefits and rights you had before volunteering

IF YOU DON'T WANT TO TAKE PART IN THE STUDY, ARE THERE OTHER CHOICES?

If you do not want to be in the study, there are no other choices except not to take part in the study.

WHAT WILL IT COST YOU TO PARTICIPATE?

There are no costs associated with taking part in the study.

WILL YOU RECEIVE ANY REWARDS FOR TAKING PART IN THIS STUDY?

You will not receive any reward for taking part in this study.

WHO WILL SEE THE INFORMATION THAT YOU GIVE?

Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. You will not be personally identified in these written materials. We may publish the results of this study; however, we will keep your name and other identifying information private.

We will make every effort to prevent anyone who is not on the research team from knowing that you gave us information, or what that information is. Audio tapes from the interview will be stored under lock and key and then destroyed following transcription to written records.

We will keep private all research records that identify you to the extent allowed by law. However, there are some circumstances in which we may have to show your information to other people. For example, the law may require us to show your information to a court. Also, we may be required to show information which identifies you to people who need to be sure we have done the research correctly; these would be people from such organizations as the University of Kentucky.

CAN YOUR TAKING PART IN THE STUDY END EARLY?

If you decide to take part in the study you still have the right to decide at any time that you no longer want to continue. You will not be treated differently if you decide to stop taking part in the study.

WHAT IF YOU HAVE QUESTIONS, SUGGESTIONS, CONCERNS, OR COMPLAINTS?

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions, suggestions, concerns, or complaints about the study, you can contact either the investigator, Margi Stickney at 278-2693, or her faculty advisor, Dr. Richard Riggs at 257-3645. If you have any questions about your rights as a volunteer in this research, contact the staff in the Office of Research Integrity at the University of Kentucky at 859-257-9428 or toll free at 1-866-400-9428. We will give you a signed copy of this consent form to take with you.

Signature of person agreeing to take part in the study

Date

Printed name of person agreeing to take part in the study

Name of [authorized] person obtaining informed consent

Date

Consent to Participate in a Research Study

A QUALITATIVE STUDY OF PERCEIVED BENEFITS OF THERAPEUTIC RIDING

CKRH Volunteer

WHY ARE YOU BEING INVITED TO TAKE PART IN THIS RESEARCH?

You are being invited to take part in a research study about the perceived benefits of therapeutic riding for children with autistic spectrum disorders. You are being asked to participate in this research study because you are a volunteer in the Central Kentucky Riding for Hope therapeutic riding program who has experience working with children diagnosed with autistic spectrum disorders. If you volunteer to take part in this study, you will be one of about 25-35 people to do so.

WHO IS DOING THE STUDY?

The person in charge of this study is Margi Stickney of the University of Kentucky Department of Kinesiology and Health Promotion. She is being guided in this research by Dr. Richard Riggs. There may be other people on the research team assisting at different times during the study.

WHAT IS THE PURPOSE OF THIS STUDY?

By doing this study, we hope to learn what kinds of physical, psychological, and social benefits affecting overall health status can be provided by a therapeutic riding program for children with autistic spectrum disorders.

ARE THERE REASONS WHY YOU SHOULD NOT TAKE PART IN THIS STUDY?

You may not wish to take part in the study.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?

The research procedures will be conducted at Central Kentucky Riding for Hope. You will need to come to CKRH one time during the study. The visit will take about one hour. The total unit of time you will be asked to volunteer for this study is one hour over the next three months.

WHAT WILL YOU BE ASKED TO DO?

You will be a part of a focus group made up of 4-6 CKRH volunteers. The group facilitator will ask several questions to the group. You may choose to respond to any questions you choose, and you may choose not to respond to any questions, as well. The group discussion will be tape recorded, and a research assistant may also be present to take handwritten notes.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

There should be no risk or discomfort in this project. To the best of our knowledge, the things you will be doing have no more risk of harm than you would experience in everyday life. If you find that any of the questions the facilitator asks you are upsetting or stressful, you may simply

choose not to answer them, and, we can tell you about some people who may be able to help you with these feelings.

One possible risk would be that statements you make could be disclosed to others outside the group. Researchers will closely guard research information and will strongly encourage all participants to keep focus group discussions confidential. However, researchers have no way of ensuring that other participants will, indeed, keep this information confidential. If you choose to participate, you should be aware that something you say in the group could be disclosed to people outside the group.

WILL YOU BENEFIT FROM TAKING PART IN THIS STUDY?

There is no guarantee that you will get any benefit from taking part in this study. However, some people may appreciate the opportunity to share their opinions and expertise on this subject, and to help promote this therapeutic option for other children. Your willingness to take part may, in the future, help society as a whole better understand this research topic.

DO YOU HAVE TO TAKE PART IN THE STUDY?

If you decide to take part in the study, it should be because you really want to volunteer. You will not lose any benefits or rights you would normally have if you choose not to volunteer. You can stop at any time during the study and still keep the benefits and rights you had before volunteering

IF YOU DON'T WANT TO TAKE PART IN THE STUDY, ARE THERE OTHER CHOICES?

If you would rather be interviewed separately from the group, please let the researcher know and we will make every attempt to accommodate your request. If you do not want to be in the study, there are no other choices except not to take part in the study.

WHAT WILL IT COST YOU TO PARTICIPATE?

There are no costs associated with taking part in the study.

WILL YOU RECEIVE ANY REWARDS FOR TAKING PART IN THIS STUDY?

You will receive a light meal during the focus group session, and a gas card valued at \$25.00 for taking part in this study.

WHO WILL SEE THE INFORMATION THAT YOU GIVE?

Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. You will not be personally identified in these written materials. We may publish the results of this study; however, we will keep your name and other identifying information private.

We will make every effort to prevent anyone who is not on the research team from knowing that you gave us information, or what that information is. Audio tapes and handwritten notes from the focus group session will be stored under lock and key and then destroyed following transcription to written records.

We will keep private all research records that identify you to the extent allowed by law. However, there are some circumstances in which we may have to show your information to other people. For example, the law may require us to show your information to a court. Also, we may be required to show information which identifies you to people who need to be sure we have done the research correctly; these would be people from such organizations as the University of Kentucky.

CAN YOUR TAKING PART IN THE STUDY END EARLY?

If you decide to take part in the study you still have the right to decide at any time that you no longer want to continue. You will not be treated differently if you decide to stop taking part in the study.

WHAT IF YOU HAVE QUESTIONS, SUGGESTIONS, CONCERNS, OR COMPLAINTS?

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions, suggestions, concerns, or complaints about the study, you can contact either the investigator, Margi Stickney at 278-2693, or her faculty advisor, Dr. Richard Riggs at 257-3645. If you have any questions about your rights as a volunteer in this research, contact the staff in the Office of Research Integrity at the University of Kentucky at 859-257-9428 or toll free at 1-866-400-9428. We will give you a signed copy of this consent form to take with you.

Signature of person agreeing to take part in the study

Date

Printed name of person agreeing to take part in the study

Name of [authorized] person obtaining informed consent

Date

Appendix D

Sample Questions for Focus Groups and Personal Interviews

A QUALITATIVE STUDY OF PERCEIVED BENEFITS OF THERAPEUTIC RIDING

SAMPLE PROGRAM FOCUS GROUP QUESTIONS: INSTRUCTORS

1. How long have each of you each served as an instructor in the CKRH program?
2. Before we start the discussion, please each write down the top 5 ways in which you personally feel autistic clients profit from therapeutic riding.
3. What types of benefits do you think children with autism gain from the program?
4. Give some examples of changes you have observed in these children during the course of the program?
5. How do you think the children benefit from the horse's presence?
6. What types of interactions take place during a TR session between:
 - a. the children and the instructors
 - b. the children and the volunteers
 - c. the children and their families/friends who are watching
 - d. the children and the other members of the class
 - e. the children and the horses
7. What physical improvements have you observed in the clients? Please give some examples.
8. What behavioral changes in the clients have you observed? Please give some examples.
9. What types of changes in social interaction have you observed in these clients? Please give examples.
10. What improvements in self-concept have you observed in your students? Please give examples.
11. To which aspects of the therapeutic riding program do you attribute these changes in your clients?
12. What unique opportunities are offered for these children through participation in a therapeutic riding program?

A QUALITATIVE STUDY OF PERCEIVED BENEFITS OF THERAPEUTIC RIDING

SEMI-STRUCTURED INTERVIEW QUESTIONS: PARENTS

1. What age and sex is the child that is participating in therapeutic riding?
2. How long has the child participated; how many sessions per year?
3. What type of class situation – private, semi-private, or group?
4. Does your child receive any other therapies during the same 8 weeks as the TR session?
5. How does your child feel about therapeutic riding?
6. What was your child's initial attitude or expectations concerning TR? Have they changed? If so, in what way have they changed?
7. What were your expectations for outcomes following your child's participation in the TR program?
8. What has been the most positive outcome from your child's participation the TR program?
9. Please describe what your child does during a typical TR session.
10. How does your child react and respond to:
 - a. the class instructor
 - b. the program volunteers
 - c. the other members of the class
 - d. the horse
11. What changes in your child's physical condition do you attribute to the TR program?
12. What changes in your child's behavior would you attribute to the TR program?
13. Does your child talk to you or others about his experience in the TR program?
14. What does your child like best about the TR experience?
15. What does your child like least about the TR experience?
16. Does your child look forward to attending the TR sessions?
17. How has your child's self-concept changed due to his experience in the TR program?
18. What factors make this program a positive experience for your child?

A QUALITATIVE STUDY OF PERCEIVED BENEFITS OF THERAPEUTIC RIDING

SEMI-STRUCTURED INTERVIEW QUESTIONS: CKRH STAFF

1. How long have you worked for the CKRH program?
2. How are clients accepted into the TR program?
3. Is there a fee for TR services?
4. What, if any, screening processes are used for applicants?
5. How many clients do you serve per session? Per year?
6. What types of benefits do you think children with autism gain from the program?
7. Describe typical expectations of parents whose children begin the TR program.
8. What length of time does the average client remain in the TR program?
9. In your opinion, what does therapeutic riding offer this population that other therapies or treatments do not?
10. Give me examples of some of the changes you have observed in autistic children during your time with the program?
11. How do you think the children benefit from the horse's presence?
12. What types of interactions take place during a TR session between:
 - a. the children and the instructors
 - b. the children and the volunteers
 - c. the children and their families/friends who are watching
 - d. the children and the other members of the class
 - e. the children and the horses
13. What physical improvements have you observed in these clients? Please give some examples.
14. What behavioral changes in these clients have you observed? Please give some examples.
15. What improvements in self-concept have you observed in these clients? Please give examples
16. What changes in social interaction have you observed in these clients? Please give examples.
17. What aspects of the TR program do you feel are most beneficial for autistic children, and why?

A QUALITATIVE STUDY OF PERCEIVED BENEFITS OF THERAPEUTIC RIDING

SAMPLE FOCUS GROUP QUESTIONS: CLASS VOLUNTEERS

1. What are your duties as volunteers?
2. What types of benefits do you think children with autism gain from the program?
3. Give examples of changes you observed in children with autism during the course of the program?
4. How do you think these children benefit from the horse's presence?
5. How do you think the children benefit from the instructors and the volunteers?
6. What types of interactions take place during a TR session between:
 - a. the children and the instructors
 - b. the children and the volunteers
 - c. the children and their families/friends who are watching
 - d. the children and the other members of the class
 - e. the children and the horses
7. What physical improvements have you observed in these clients? Please give some examples.
8. What behavioral changes in these clients have you observed? Please give some examples.
9. What changes in social interaction in these clients have you observed? Please give some examples.
10. How do these children's attitudes and participation in the class typically change from their initial experience? Tell me about some you've observed, and why you think they changed.
11. What methods or procedures used in the class do you feel are most beneficial or effective for these clients? Describe and explain why.

Appendix E

Participant Profiles

The main sources of this information are the CKRH client files, with supplementation with data from the parent interview transcripts. The confidential client files include forms such as the annual Participant Registration/Release, Physician's Statement and Medical History, Lesson Request, Assessment, Phone Screening, Lesson Plan Template, and Lesson Plan Checklist. The facility's standardized forms have varied over the years, and information for every client from each year of their CKRH participation was not always available. These files may only be accessed by CKRH staff or riding instructors. The more informal Rider-at-a-Glance cards, which contain no diagnoses, are available to all volunteers working with clients and were also utilized by the researcher.

Bob

Bob is a seven year-old male who has been riding at CKRH for two years. He has a diagnosis of autism, with speech and major sensory issues indicated as special needs. He has seizures which are medically controlled, and he is highly impulsive, but can follow one or two-step commands. He also receives occupational, physical, and speech therapies, and has participated in a Miracle League baseball program. His initial 2007 Assessment form notes difficult transitions in separation from parent/guardian and frequent anger outbursts, including a tendency to kick and hit the sidewalkers. He is sensitive to loud noises, but likes trains, buses, and almost any food. Lesson goals include positive interaction with people and horses; appropriate communication and responses;

improved beginner riding skills; increased core strength, balance, and fine/gross motor skills; and following multi-step instructions. He responds to praise and likes to ride backwards, and is currently riding in a group lesson with a horse leader and two sidewalkers.

Dave

Dave is a 14 year-old male who has been riding at CKRH since 2003. He had an initial diagnosis of autism and Landau-Kleffner syndrome, with a 1996 date of onset. His problem areas include communication and speech delivery with stated goals of exercise, social interaction, verbalization, and increased independent riding. He uses an aid for assistance in a regular classroom at school, where he works below grade level in some areas. He lives with both parents and his listed interests have included his dog, computers, reading, swimming, travel, Boy Scouts, camping, and roller coasters. He receives occupational therapy and has recently participated in a school bowling league as well as Boy Scouts. Dave is now riding at CKRH in a group lesson with a horse leader, but rides off-lead when possible. Lesson goals include maintaining focus on 3-step tasks; riding independently with *spotter* nearby; using a soft voice and slow movements when giving cues to his horse. He has twice participated in the CKRH Night of the Stars summer fund raiser.

Rick

Rick is a 13 year-old male who has been riding at CKRH for nine years. He has a diagnosis of autism/sensory integration disorder, with the date of onset at birth. Problem areas listed include receptive language difficulty; tactile sensation (he prefers deep pressure); severe speech delays; low muscle tone, especially in the trunk; and cognitive,

learning, emotional, psychological, and behavioral difficulties related to autism. His parents describe somewhat decreased motor planning ability, proprioceptive difficulty, and developmental delays. He can be stubborn, and is very dependent on set routines. He responds well to consistency and some sort of reward system. He sometimes pulls his eyelashes if he becomes anxious. He lives at home with his mother, father, sister and dog, and enjoys riding, swimming, bowling, music, competitive games, and computer activities. He also participates in speech, occupational, and behavioral modification therapies. Riding lessons should encourage appropriate behavior and verbal responses, better focus and eye contact, increased self-confidence, strengthening of core muscles, motor planning activities, increased coordination, and deep pressure to meet proprioceptive needs. Rick participates in a group riding lesson with a leader and two sidewalkers or *spotters*, and will be riding in the Special Olympics for the first time this year.

Jerry

Jerry is a five year-old male who is in his second year of participation at CKRH. His file contained his assessment and evaluation information from the Cincinnati Children's Hospital Medical Center, where a diagnosis of autism spectrum disorder was determined in 2007. Problem areas to be addressed include speech and communication, eye contact, play skills, attention to task, social development, and changes in routine which often lead to tantrums. Jerry receives both speech and occupational therapy. He currently rides in a group lesson with a horse leader and two sidewalkers.

Jan

Jan is a 20 year-old female high school student in her first year of participation at CKRH. She has a diagnosis of autism with a 1991 date of onset. Jan is very sensitive to sensory stimulation such as touch or loud noises; is afraid of dogs; has difficulty moderating her behavior; and exhibits communication/behavior/emotional delays. She has limited fine motor skills and balance, and very poor confidence levels. She can become agitated easily, typically expressing this verbally but sometimes physically. She has very poor awareness of safety-related issues, and therefore needs to have someone in close proximity. Lesson goals include increasing her comfort level and confidence with the horses and the barn environment and encouraging verbalization. Jan currently participates in a private riding lesson with a horse leader and two sidewalkers.

Jim

Jim is a 23 year-old male who has been riding at CKRH since he was five or six years old, although CKRH records are only available from the year 2001 on. Jim attended public school and is currently participating in a day program for adults with special needs. He lives at home with his mother, an older brother and two nephews. His earliest CKRH file records list diagnoses of pervasive developmental delay and Tourette's syndrome, with a date of onset prior to two years of age. Registration forms from 2007 note diagnoses of Asperger's and Tourette's syndrome, and 2008 lists diagnoses of autism and Tourette's syndrome. Problem areas have included sensory integration dysfunction; speech and language difficulties and communication disorders; cognitive delay; low muscle tone and balance; tactile defensiveness; gravitational insecurity; emotional and psychological difficulties related to Tourette's syndrome

(which improved as he matured); spatial awareness; and motor planning. Jim may communicate in short sentences with yes/no answers, and responds to praise and positive feedback. He enjoys bowling, swimming, music, animals, horses and horseback riding, and Special Olympics participation. Jim rides in a group lesson with a horse leader and a sidewalker who functions as a *spotter*, but does as much off lead independent riding as possible. Therapeutic goals include improved trunk strength and balance; socialization and recreation; development of new skills and problem-solving abilities; increased confidence and more independent riding.

Meghan

Meghan is a nine year-old female who has participated at CKRH since 2002. She has an autistic spectrum disorder diagnosis with a date of onset of less than three years of age, and has reported problem areas of sensory defensiveness and sensory integration problems (has a very high pain threshold); receptive and expressive language; occasional balance problems with a fear of falling and difficulty negotiating stairs; delayed toileting; global delay learning disability; motor planning and fine motor skills; cognitive processing; limited self-help skills; social delay; and *acting out* due to frustration with activity transitions or inability to understand verbal instructions. If overwhelmed with stimuli, she may on occasion emit an ear-piercing scream. Meghan attends public school (in both traditional and functionally mentally disabled classrooms) and lives at home with both parents and grandparents next door. She enjoys family activities and has no fear of animals. She has also participated in developmental intervention and physical, speech and occupational therapy. Goals for therapeutic riding include sensory stimulation and improved integration; increased spatial awareness; improved gross/fine motor skills,

motor planning and coordination; successfully following multi-step directions; increased concentration and attention span; improved language and social skills; increased self-esteem and confidence; and more independent riding. Meghan rides in a group lesson with a horse leader and one sidewalker, but rides off-lead when possible. She responds well to visual cues and praise, and will be riding in the Special Olympics for the third time in 2008.

Gary

Gary is a four year-old male who is in his first session of therapeutic riding at CKRH. He has a diagnosis of autism, with a date of onset at birth. He has some emotional and psychological impairment due to autism and he receives speech and occupational therapy. He uses a few words to communicate and follows directions fairly well. He has some sensory sensitivity and minimal social interaction skills, and he prefers a set order and routine. Gary rides in a group lesson with a horse leader and two sidewalkers. Lesson goals include increased balance and core muscle strength, increased socialization, and learning to follow 2-step directions.

Steve

Steve is a 16 year-old male in his first year at CKRH, although he previously rode in a program in another state for three years. He was diagnosed five years ago with “very high functioning” Asperger’s syndrome, and his problem areas include verbal and written skills, sensory dysfunction disorder, and depression. He attends public school and sees a school speech therapist as well as a psychologist and psychiatrist. He has a good sense of humor and has enjoyed participating in swimming in the past. Steve rides in a group lesson with a horse leader, but rides off-lead as much as possible. Lesson goals include

improved balance, strength, coordination, and gross motor planning skills; successfully following multi-step directions; age-appropriate communication; increased focus on task; and improved independent riding skills. He enjoys grooming and spending time bonding with his horse, and he will be riding in the Special Olympics this year for the first time.

John

John is a six year-old male in his second year of participation at CKRH. He was diagnosed with autism at 18 months and was non-verbal when he entered the program in 2007, although he often emits high-pitched screams or squeals. Problem areas include tactile issues, constipation, low muscle tone and endurance, balance, coordination, thought control disorder, and autism-related learning disabilities and emotional, psychological, and behavioral difficulties. He will often wander or run away if not watched carefully, and will self-stimulate by slapping himself in the stomach repeatedly. He likes animals but would not touch them in the past. His reaction to fear, frustration, or overstimulation may be displayed in aggression such as pinching. He receives speech and occupational therapy and sees a psychologist. His mother and two aunts share caretaking responsibilities. John will ride in a private lesson with a horse leader and one or two sidewalkers. A communication board (for visual aids) and sign language may be employed, as John recognizes a few signed words. Lesson goals include improved verbalization, concentration, motor planning, balance, and coordination.

Wayne

Wayne is an eight year-old male who has been riding at CKRH for two years. He has a diagnosis of autism with related behavior problems such as tantrums. He has age-appropriate communication skills and may have difficulty with transitions if not

adequately prepared. Wayne lives at home with both parents, two sisters, and an autism assistance dog named Snoopy. He enjoys swimming, loves Charlie Brown (which he likes to be called), and is fascinated with numbers, dates and calendars. He also participates in Miracle League baseball and receives speech and occupational therapy. Wayne rides in a group class with a horse leader and two sidewalkers. Goals for his riding lessons include improved fine/gross motor skills, core strength, balance, self-confidence, and social skills, and learning to follow multiple-step directions from instructors.

Doug

Doug is a nine year-old male who has been riding at CKRH since 2002. His diagnosis is autism with an age of onset of two years. His problem areas include sensation and tactile awareness, balance, muscle strength, motor planning, proprioception and coordination, thinking and cognition (thought control disorder), communication, lack of confidence, and emotional, psychological, and behavioral issues. When he began participating, he had no spontaneous language and he is subject to frequent screaming and tantrums. He receives occupational, speech, and physical therapy, as well as applied behavior analysis. Doug attends public school and lives with his mother, sister, brother (who has Asperger's syndrome) and family dog. Doug rides in a group lesson with a horse leader and two sidewalkers. Riding lesson goals include improved verbalization and vocabulary; sensory input; increased muscle, core strength (especially in hands), fine/gross motor skills, and motor planning; less hand flapping behavior; following two-step instructions; and interaction with peers.

Brian

Brian is an 11 year-old male with a diagnosis of Asperger's syndrome who has been riding at CKRH for seven or eight years. Problem areas have been listed in tactile sensation, communication, thinking and cognition, minor balance and coordination, motor planning, uncontrollable repetitive movement, proprioception, and body control. Brian attends public school and lives at home with his mother, brother (who has autism) and sister. Brian rides in a group lesson with a horse leader and one sidewalker functioning as a *spotter*, but rides off-lead as much as possible. Lesson goals have included increased confidence and independence; improved muscle strength, balance, motor planning and problem-solving skills; appropriate conversation and social interactions; sensory work; and to improve interactions between Brian and his brother, who also rides at CKRH. Brian has previously participated in the CKRH summer fund raiser *Night of the Stars* and has won a gold medal riding in the Special Olympics, where he hopes to compete for the third time this year.

Kerry

Kerry is an eight year-old male who has ridden at CKRH for three years. He has diagnosis of Asperger's syndrome, with reported problem areas of speech, balance and coordination, sensory integration, tactile sensation, thought control disorder, and emotional, psychological, and behavioral issues (such as repetitive motions) related to his diagnosis. His cognitive function is above the norm for his age group, and he tends to be very talkative. He attends private school, and has received occupational and speech therapy. Riding lesson goals include increased core and upper arm strength, balance,

motor planning, coordination, proprioceptive awareness, and fine/gross motor skills, as well as independent riding skills and the ability to follow multi-step directions. Kerry rides in a group lesson with a horse leader and one sidewalker acting as a “spotter,” but rides off-lead when possible. This year he participated in the CKRH summer fundraiser, *Night of the Stars*, and he thinks he would like to become a jockey.

Robin

Robin is a five year-old male who has ridden at CKRH for the past two years. He has a diagnosis of autism and hypotonia, with concerns in balance, stability, coordination, strength, sensory processing, tactile defensiveness, and motor planning, with delays in speech and socialization. Fear or insecurity may bring on a “meltdown,” but deep pressure is often helpful in calming him. He receives physical, speech language and occupational therapy. He attends pre-school and lives at home with both parents, a sister and three dogs.

Robin began riding in private lessons but progressed on to a group class, where he rides with a horse leader and two sidewalkers. He gets bored easily and needs constant challenge and activity. Lesson goals include increased attention span and focus on task; completing multi-step directions; and improved balance, strength, coordination, motor planning and riding skills.



at the Kentucky Horse Park
A Therapeutic Experience
P.O. Box 13155 Lexington, Kentucky 40511 (859) 231-7066

Appendix F CKRH Record Forms

Assessment

Participant's Name: _____ Date: _____

Assessment provided by (Please circle one) Parent, Teacher, Therapist

Assessment: Include assessment of mobility, balance, weight bearing, spatial awareness, motor planning, weaknesses, coordination, development/education level: _____

Suggested Mounting Procedure:

Regular mount from block _____ Total Lift _____ Wheel Chair Transfer _____

From Ramp (side sit, swivel, rider's leg over the crest of horse's neck) _____

Comments _____

Assistive Devices Used:

Wheelchair _____ Braces _____ Crutches _____ Glasses _____ Hearing Aid _____

Communication Board _____ Sign Language _____ Other _____

Suggested Exercises and Activities: Suggested exercises and activities to reinforce present therapy, to achieve I.E.P. goals, to improve weakness: _____

Precautions/Restrictions: _____

Future Goals (i.e. Why are you applying for participation? What would you like to see accomplished?):

Behavior/Attitude Difficulties & Recommendations: _____

SOCIAL (i.e. work/school including grade completed, leisure interest, relationships- family structure, support system, companion animals, fears/concerns. Etc.): _____



SCHEDULE CONFIRMATION
Fall 2008 Session I: August 2nd – September 29th

_____ is scheduled to participate in the following class:
PARTICIPANT _____

MONDAY (Instructor: Shelly Stanley & Amy D.)	6:00 _____	7:15 _____
MONDAY (Instructor: LaTonna Wilson)	6:00 _____	7:15 _____
WEDNESDAY (Instructor: Jenny Jackson)	6:00 _____	7:15 _____
WEDNESDAY (Instructor: John Lew)	6:00 _____	7:15 _____
THURSDAY (Instructor: Kristin Pfahl)	6:00 _____	7:15 _____
THURSDAY (Instructor: Jenny Jackson)	6:00 _____	7:15 _____
FRIDAY (Instructor: Jenny Jackson)	10:00 _____	
SATURDAY (Instructor: Jenny Jackson)	9:30-10:45 am _____	11:00 am -12:15 _____
SATURDAY (Instructor: Beth Nodurft)	1:00 pm _____	

OTHER: _____

_____ The following information must be provided prior to the participant's first lesson.

_____ Thank you, all needed information has already been provided.

When arriving for all classes including horsemasters, please wait either at the picnic table or in the multi purpose room. Thank you.

SUMMER SESSION BEGINS THE WEEK OF AUGUST 2ND

Potential Rider/Client Phone Screening

Participant Name: _____	DOB: _____
Parent/Guardian _____	
Phone: _____	other: _____ e-mail: _____
Mailing address: _____	
Referred by: _____	

Disability/Diagnosis: _____

Currently receiving other therapies? _____

Age/grade equivalent? _____ Height: _____ Weight: _____

Walking? Yes – independently, crutches, walker, hand held. How far _____

No – stroller, manual wheelchair, power wheelchair. Transfers? Stand, pivot, sit pivot, dependent.

Communication: verbally pictures, sign language, vocalization, augmentative alternative. Follows 1 or 2 step commands.

Seizures ___ Type _____ Frequency _____

Allergies _____ Inhaler/meds for allergies _____

Shunt ___ PEG ___ Hip Subluxation ___ Reduced mobility in hips or spine ___ Pain level _____

Hypertension ___ Cancer ___ Impulsive _____ Tolerance to activity _____ Fear of animals _____

Skin irritations/wounds ___ Spinal fusion(level), rods _____ Fractures/dates _____

Upper/lower extremity numbness or bowel/bladder symptoms (neurological) _____

Catheter ___ Surgeries/dates _____

NOTES: _____

Verbal consent provided by parent/guardian to proceed with transmitting information via fax to Cardinal Hill Rehab Hospital.

Completed by _____ date _____

Lesson Plan Checklist

Student: _____ Date: _____
Session/Year: _____ Mount: ___ block
Horse: _____ ___ chair ramp
Instructor: _____ ___ other _____

1. Lesson Objectives:

2. Exercises/Warm ups

___ Equicisor	___ toe touch
___ grooming	___ opposite toe touch
___ tacking	___ golden tickets
___ turtle/racehorse walk	___ leg swing
___ airplane/helicopter arms	___ change of directions
___ arms over head	___ change of rein
___ helmet touch	___ high 5s
___ shoulder touch	___ other _____
___ knee touch	

3. Obstacle Courses

___ weave cones	___ T shaped ground poles
___ serpentine cones	___ grd poles raised one end
___ over ground poles	___ grd poles raised both ends
___ serpentine ground poles	___ barrel # _____
___ weave upright poles	___ Figure 8 barrels
___ serpentine upright poles	___ clover leaf barrels
___ box	___ mailbox
___ pole fan	___ bridge
___ parallel ground poles	___ U shaped ground poles
___ L shaped ground poles	___ other _____
___ zig zag ground poles	

4. Games

- bean bag relay
- horseshoes
- egg & spoon relay
- grooming tools
- ring around the rosie
- toss the dice
- dressage pattern

- ring on the pole arm
- drill team
- ring from cone to cone
- toy from basket to basket
- basketball
- copy cat
- other _____

5. Riding Skills

- whoa
- Whoa and release
- walk
- sitting trot
- rising trot
- canter
- quiet hands
- holding reins
- direct rein
- neck rein
- take up rein
- steering

- upright position
- balance
- look through the turn
- spacing
- verbal cues
- transitions
- heels down
- leg position
- leg aids
- 2 point
- 2 point at trot
- other _____

6. Cool Down

- feet out of stirrups
- walk on loose rein
- trail ride
- Simon Says
- ball toss
- horse trivia
- high 5s
- other _____

7. Dismount

- independent
- minimal assist
- assist
- total assist
- arena
- other _____

7. Evaluation of Lesson & Objectives:

Student:		Age:		Lesson Plans	Horse:	
Session/ Year					Mount:	
Tack:					Dismount:	
Disability		Mobility:		Instructor:		

Session Goals	Goal 1	Goal 2	Goal 3	Goal 4	Body Parts / Tack Parts
	Lesson Objectives	Exercises / Games / Warm Up / Mounting	Riding Skills	Cool Down / Dismount	Evaluation of Lesson Objectives
Lesson # _____					
Date: _____					
Lesson # _____					
Date: _____					

Lesson # _____					
Date: _____					
Lesson # _____					
Date: _____					
Lesson # _____					
Date: _____					



at the Kentucky Horse Park
A Therapeutic Experience
P.O. Box 13155 Lexington, Kentucky 40511 (859) 231-7066

Riding Participant's Registration and Release Form

Participant's Name: _____ **Age:** _____ **DOB** _____
Address: _____ **City/State/Zip:** _____
Home phone: _____ **Cell phone:** _____ **Email:** _____
Employer or School: _____ **Phone:** _____

Parent/Legal Guardian: _____
Address: _____ **City/State/Zip:** _____
Home phone: _____ **Cell phone:** _____ **Email:** _____
Employer: _____ **Phone:** _____

I hereby consent for the above information to be maintained in the CKRH database so that I may receive information about the program. **Signature:** _____ **Date:** _____
 Parent/guardian if rider under 18

How did you hear about the program? _____
 New Participant Returning Participant **Date of Last Participation:** _____

Liability Release

_____ (Participant's Name) would like to participate in the Central Kentucky Riding for Hope, Inc. program. I acknowledge the risks and potential for risks of horseback riding, hippotherapy and horse related activities. However, I feel that the possible benefits to myself/my son/my daughter/my ward are greater than the risk assumed. I hereby, intending to be legally bound, for myself, my heirs and assigns, executors or administrators, waive and release forever all claims for damages against Central Kentucky Riding for Hope, Inc. and The Kentucky Horse Park, its Board of Directors, Employees, Instructors, Therapists, Aides, Volunteers, Equines, Equine Owners, Equipment and Operating Site for any and all injuries and/or losses I/my son/my daughter/my ward may sustain while participating at Central Kentucky Riding for Hope, Inc.

"WARNING: Under Kentucky law, a farm animal activity sponsor, farm animal professional or other person does not have the duty to eliminate all risks of injury of participation in farm animal activities. There are inherent risks of injury that you voluntarily accept if you participate in farm animal activities."

Signature: _____ **Date:** _____
 Signature of parent/guardian if rider under 18

Photo Release (Please sign 1st or 2nd option, do not both)

I hereby consent to and authorize the use and reproduction by Central Kentucky Riding for Hope, Inc. of any and all photographs and any other audiovisual material taken of me/my son/my daughter/my ward for promotional material, educational activities, exhibits, electronic publications (including the World Wide Web) or for any other use for the benefit of the program.

Photo Release **Signature:** _____ **Date:** _____
 Parent/guardian if rider under 18

Do Not Photograph **Signature:** _____ **Date:** _____
 Parent/guardian if rider under 18

PLEASE COMPLETE OTHER SIDE 



Authorization for Emergency Medical Treatment

Participant Staff Volunteer

Name: _____

Physician's Name: _____

Preferred Medical Facility: _____

Health Insurance Company: _____

Policy # _____

Allergies to medication: _____

Current Medication: _____

Person(s) to be contacted in case of an emergency:

1. Name: _____ Relation: _____ Phone _____

2. Name: _____ Relation: _____ Phone _____

3. Name: _____ Relation: _____ Phone _____

In the event emergency medical aid/treatment is required due to illness or injury during the process of receiving services, or while being on the property of the agency, I authorize Central Kentucky Riding for Hope, Inc. to:

1. Secure and retain medical treatment and transportation, if needed.
2. Release participants / client records upon request to the authorized individual or agency involved in the medical emergency treatment.

Consent Plan

This authorization includes x-ray, surgery, hospitalization, medication, and any treatment procedure deemed "life saving" by the physician. This provision will only be invoked if the person listed above is unable to be reached.

Consent Signature: _____ Date: _____

Signature of parent/guardian if rider is under 18

Non-Consent Plan

I do not give my consent for emergency medical treatment/aid in the case of illness or injury during the process of receiving services or while being on the property of the agency.

- Parent or legal guardian will remain on site at all times during equine assisted activities
- In the event emergency treatment/aid is required, I wish the following procedures to take place:

Non-Consent Signature: _____ Date: _____

Signature of parent/guardian if rider is under 18



at the Kentucky Horse Park
A Therapeutic Experience
P.O. Box 13155 Lexington, Kentucky 40511 (859) 231-7066

Date: _____

Dear Health Care Provider:

Your patient, _____ is interested in participating in supervised equine activities. (participant's name)

In order to safely provide this service, our center requests that you complete/update the attached Medical History and Physician's Statement Form. Please note that the following conditions may suggest precautions and contraindications to equine activities. Therefore, when completing this form, please note whether these conditions are present, and to what degree.

If you have any questions or concerns regarding this patient's participation in therapeutic horseback riding, hippotherapy and horse related activities, please do not hesitate to contact the operating center at the address/phone indicated on reverse.

Orthopedic

Spinal Fusion: Y N _____
Spinal Instabilities/Abnormalities: Y N _____

Atlantoaxial Instabilities: Y N _____
Scoliosis: Y N _____
Kyphosis: Y N _____
Lordosis: Y N _____
Hip/Joint Subluxation and Dislocation: Y N _____

Osteoporosis: Y N _____
Pathologic Fractures: Y N _____
Coxas Arthrosis: Y N _____
Heterotopic Ossification: Y N _____
Osteogenesis Imperfecta: Y N _____
Cranial Deficits: Y N _____
Spinal Orthoses: Y N _____
Internal Spinal Stabilization Devices: Y N _____

Neurological

Hydrocephalus/shunt: Y N _____
Spina Bifida: Y N _____
Tethered Cord: Y N _____
Chiari II Malformation: Y N _____
Hydromyelia: Y N _____
Paralysis due to Spinal Cord Injury: Y N _____
Seizure Disorders: Y N _____

Medical/Surgical

Allergies: Y N _____
Recent Surgery: Y N _____

Poor Endurance: Y N _____
Cancer: Y N _____
Diabetes: Y N _____
Peripheral Vascular Disease: Y N _____
Varicose Veins: Y N _____

Hemophilia: Y N _____
Hypertension: Y N _____
Serious Heart Condition: _____
Stroke (Cerebrovascular Accident):
Y N _____

Secondary Concerns:

Behavior problems: Y N _____
Weight control disorder: Y N _____
Thought control disorder: Y N _____
Acute exacerbation of
chronic disorder: Y N _____
Indwelling catheter: Y N _____

Physician's Statement

Given the diagnosis and medical information, this person is not medically precluded from participation in equine assisted activities. I understand that the NARHA center will weigh the medical information given against the existing precautions and contraindications. Therefore, I refer this person to the NARHA center for ongoing evaluation to determine eligibility for participation.

Physician's name /title (please print): _____ MD DO NP PA other _____

License/UPIN Number: _____

Address: _____ Phone: _____

Physician's Signature: _____ Date: _____

Rider at a Glance

First Name: _____ **Age:** _____

Goals for this class: 1) Use direct rein 100% of lesson to guide horse when prompted with verbal cues. 2) Demonstrate appropriate behavior around horse by using soft voice, walking and touching the horse softly. 3) Increase muscle tone 4) Make eye contact and verbally respond without being prompted when spoken to 5 out of 10 times per lesson.

Communication: If appropriate ask him to make eye contact; Use simple (about 5 word) directives;

Reward System: Stickers He may receive up to 12 stickers during a riding lesson. Each sticker represents 5 minutes of play station.

Rider performs well with consistency. Each lesson should follow the same order. Give him plenty of preparation before transitioning to something new.



Order Of The Lesson: 1) **Rider** will pick up his helmet. 2) **Rider** will get a drink of water from the multi purpose room. 3) **Rider** will go to the picnic table beside the round pen and wait quietly to get on horse. (Receive sticker when completed.) 4) **Rider** will use a quite voice and walk to the mounting block. Jumping is unacceptable behavior. Running is unacceptable behavior. 5) **Rider** will follow directions from his instructor and volunteers. 6) **Rider** will get on the horse. (Receive sticker when completed.) 7) **Rider** will ride the horse sitting in the saddle. **Rider** will use a quite voice while riding the horse. Standing up is unacceptable behavior. (Receive sticker when completed.) 8) **Rider** will complete exercises while riding the horse. (Receive sticker when completed.) 9) **Rider** will hold the reins while riding the horse. (Receive sticker when completed.) 10) **Rider** will move the reins to turn the horse. (Receive sticker when completed.) 11) **Rider** will keep his toes pointed to the sky and his heels to the ground while riding the horse. (Receive sticker when completed.) 12) **Rider** will sit up tall while riding the horse. Laying down on the horse is unacceptable. (Receive sticker when completed.) 13) **Rider** will get off horse when the instructor ask him to. 14) **Rider** will lead his horse to the back of the barn. (Receive sticker when completed.)

References

- American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders (Fourth Edition, Text Revision)*. Washington, D.C. American Psychiatric Association.
- American Psychological Association. (2009). *Publication manual of the American Psychological Association (Sixth edition)*. Washington, D.C.: American Psychological Association.
- Bass, M. M., Duchowny, C. A., & Llabre M. M. (2009). The effect of therapeutic horseback riding on social functioning in children with autism. *Autism and Developmental Disorders, 39*, 1261-1267. doi: 10.1007/s10803-009-0734-3
- Benda, W., McGibbon, N. H., & Grant, K. L. (2003). Improvements in muscle symmetry in children with cerebral palsy after equine-assisted therapy (hippotherapy). *The Journal of Alternative and Complementary Medicine, 9*(6), 817-825.
- Berk, L. E. (2004). *Development through the lifespan (Third edition)*. Boston, MA: Allyn & Bacon.
- Bertoti, D. B. (1988). Effect of therapeutic horseback riding on posture in children with cerebral palsy. *Physical Therapy, 68*, 1505-1512.
- Bizub, A. L., Joy, A., & Davidson, L. (2003). "It's like being in another world": demonstrating the benefits of therapeutic horseback riding for individuals with psychiatric disability. *Psychiatric Rehabilitation Journal, 26*(4), 377-384.
- Casady, R. L., & Nichols-Larsen, D. S. (2004). The effect of hippotherapy on ten children with cerebral palsy. *Pediatric Physical Therapy, 16*(3), 165-172.

- Cawley, R., Cawley, D., & Retter, K. (1994.) Therapeutic horseback riding and self-concept in adolescents with special educational needs. *Anthrozoos*, 7(2), 129-134.
- Centers for Disease Control and Prevention. (2008). *Autism spectrum disorders (ASDs)*. Retrieved from <http://www.cdc.gov/ncbddd/autism/index.html>
- Central Kentucky Riding for Hope (CKRH). (2010). www.ckrh.org
- Cherng, R. J., Liao, H. F., Leung, H. W. C., & Hwang, A. W. (2004). The effectiveness of therapeutic horseback riding in children with spastic cerebral palsy. *Adapted Physical Activity Quarterly*, 21, 103-121.
- Cornell University, (2008). *Disability statistics: online resources for U.S. disability statistics*. Retrieved from <http://www.ilr.cornell.edu/edi/disabilitystatistics/reports/acs.cfm?statistic=1>
- Cottrell, R. R., & McKenzie, J. F. (2005). *Health promotion and education research methods*. Sudbury, MA: Jones and Bartlett Publishers.
- Davis, E., Davies, B., Wolfe, R., Raadsveld, R., Heine, B., Thomason, P., Graham, H. K. (2009). *Developmental Medicine & Child Neurology*, 51, 111-119. doi: 10.1111/j.1469-8749.2008.03245.x
- Edelman, C. L. & Mandle. C. L. (2002). *Health promotion throughout the lifespan (Fifth edition)*. St. Louis, MO: Mosby, Inc.
- Erikson, E. H. (1950). *Childhood and society*. New York: Norton.
- Frewin, K., & Gardiner, B. (2005). New age or old sage? A review of equine assisted psychotherapy. *The Australian Journal of Counseling Psychology*, 6, 13-17.

- Haehl, V., Giuliani, C., & Lewis, C. (1999). Influence of hippotherapy on the kinematics and functional performance of two children with cerebral palsy. *Pediatric Physical Therapy, 11*, 89-101.
- Hamill, D., Washington, K., & White, O. R. (2007). The effect of hippotherapy on postural control in sitting for children with cerebral palsy. *Physical & Occupational Therapy in Pediatrics, 27*(4), 23-42.
- Kabot, S., Masi, W., & Segal, M. (2003). Advances in the diagnosis and treatment of autism spectrum disorders spectrum disorders. *Professional Psychology: Research and Practice, 34* (1), 26-33.
- Kaiser, L., Spence, L. J., Lavergne, A. G., & Vanden Bosch, K. L. (2004). Can a week of therapeutic riding make a difference? A pilot study. *Anthrozoos, 17*(1), 63-72.
- Kanner, L. (1943). Autistic disturbances of affective contact. *Nervous Child, 2*, 217-250.
- Ketelaar, M., Vermeer, A., 't Hart, H., van Petegem-van Beek, E., & Helders, P. J. M. (2001). Effects of a functional therapy program on motor abilities of children with cerebral palsy. *Physical Therapy, 81*(9), 1534-1545.
- Lechner, H. E., Feldhaus, S., Gudmundsen, L., Hegemann, D., Michel, D., Zach, G. A., & Knecht, H. (2003). The short-term effect of hippotherapy on spasticity in patients with spinal cord injury. *Spinal Cord, 41*, 502-505.
- Lehrman, J. & Ross, D. B. (2001). Therapeutic riding for a student with multiple disabilities and visual impairment: A case study. *Journal of Visual Impairment & Blindness, 95*(2), 108-109.

- Macauley, B. L. & Gutierrez, K. M. (2004). The effectiveness of hippotherapy for children with language-learning disabilities. *Communication Disorders Quarterly, 25*(4), 205-217.
- MacKinnon, J. R., Noh, S., Laliberte, D., Lariviere, J., & Allan, D. E. (1995). Therapeutic horseback riding: a review of the literature. *Physical & Occupational Therapy in Pediatrics, 15*(1), 1-15.
- MacKinnon, J. R., Noh, S., Lariviere, J., MacPhail, A., Allan, D. E., & Laliberte, D. (1995). A study of therapeutic effects of horseback riding for children with cerebral palsy. *Physical & Occupational Therapy in Pediatrics, 15*(1), 17-34.
- MacPhail, H. E. A., Edwards, J., Golding, J., Miller, K., Mosier, C. & Zwiers, T. (1998). Trunk postural reactions in children with and without cerebral palsy during therapeutic horseback riding. *Pediatric Physical Therapy, 10*, 143-147.
- McGibbon, N. H., Andrade, C. K., Widener, G. & Cintas, H. L. (1998). Effect of an equine-movement therapy program on gait, energy expenditure, and motor function in children with spastic cerebral palsy: A pilot study. *Developmental Medicine and Child Neurology, 40*, 754-762.
- Murray, D. S., Ruble, L. A., Willis, H. & Molloy, C. A. (2009). Parent and teacher report of social skills in children with autism spectrum disorders. *Language, Speech, and Hearing Services in Schools, 40*, 109-115.
- Murray, R. B., Zentner, J. P., & Yakimo, R. (2009). *Health promotion strategies through the life span (Eighth edition)*. Upper Saddle River, NJ: Pearson Education, Inc.

- Myers, S. M., & Johnson, C. P. (2007). Management of children with autism spectrum disorders spectrum disorders. *Pediatrics, 120*(5), 1162-1182.
- National Institute of Health, National Institute of Child Health and Human Development. (2010). Autism spectrum disorders (ASDs). Retrieved from <http://www.nichd.nih.gov>
- National Research Council. (2001.) *Educating Children with Autism*. Washington, D.C.: National Academy Press.
- Ninivaggi, F. J. (2008). Review of DM-ID, Diagnostic Manual-Intellectual Disability: A textbook of diagnosis of mental disorders in persons with intellectual disability. *Journal of Autism spectrum disorders and Developmental Disorders, 38*(1), 204-206.
- North American Riding for the Handicapped Association (NARHA). (2010). www.narha.org
- Ruble, L. A. (2001). Analysis of social interactions as goal-directed behaviors in children with autism spectrum disorders. *Journal of Autism Spectrum Disorders and Developmental Disorders, 31*(5), 471-482.
- Sadock, B. J. & Sadock, V. A. (2003). *Kaplan & Sadock's synopsis of psychiatry: behavioral science/clinical psychiatry (Ninth edition)*. Philadelphia, PA: Lippincott Williams and Wilkins.
- Sterba, J. A., Rogers, B. T., France, A. P., & Vokes, D. A. (2002). Horseback riding in children with cerebral palsy: Effect on gross motor function. *Developmental Medicine and Child Neurology, 44*, 301-308.

United States Department of Health and Human Services. (2010). *Healthy People 2010*.

Retrieved from <http://www.healthypeople.gov>.

White, S. W., Keonig, K., & Scahill, L. (2007). Social skills development in children with autism spectrum disorders spectrum disorders: a review of the intervention research. *Journal of Autism Spectrum Disorders and Developmental Disorders*, 37(10), 1858-1868.

Winchester, P., Kendall, K., Peters, H., Sears, N., & Winkley, T. (2002). The effect of therapeutic horseback riding on gross motor function and gait speed in children who are developmentally delayed. *Physical & Occupational Therapy in Pediatrics*, 22(3-4), 37-50.

VITA

DATE OF BIRTH July 11, 1952

PLACE OF BIRTH Springfield, Ohio

EDUCATION

1979 Elementary Education certification and Minor in Horsemanship
Morehead State University

1974 B.A., Speech/Theatre Education
Otterbein College

PROFESSIONAL POSITIONS

1990-2007 Director of Education, Kentucky Horse Park

2003-2006 Adjunct Instructor
Kentucky Community and Technical College System, Bluegrass Campus

HONORS

None

PROFESSIONAL PUBLICATIONS

None

MARGARET ANN STICKNEY